

BLUE BOX PLUS!

QUINTE REGIONAL RECYCLING

DEMONSTRATION PROGRAM

FINAL REPORT

DECEMBER, 1991

AUGUST 1992



OMMRI  
Corporations in  
Support of Recycling

Quinte  
Regional  
Recycling

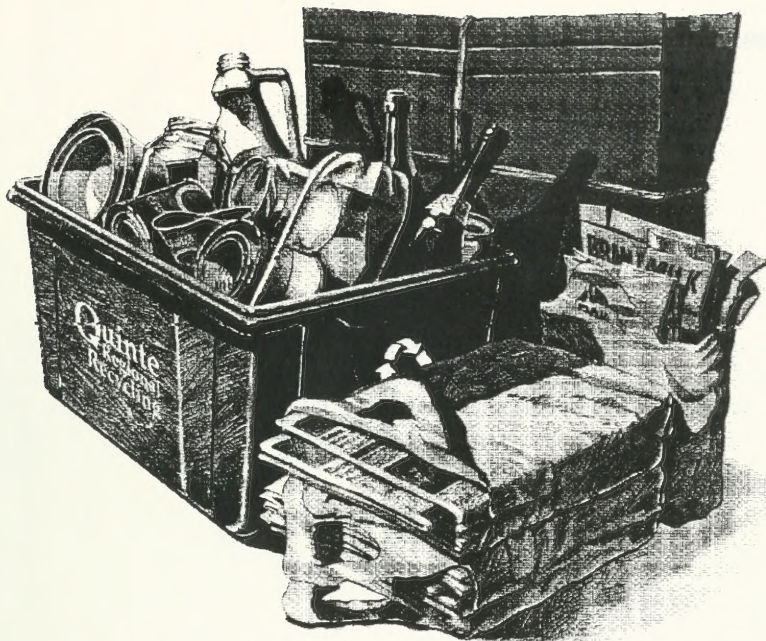


Ontario

Environment  
Environnement

7/8/92





# Blue Box Plus!

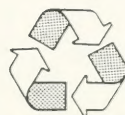
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Page 1 of 1

THE  
UNITED STATES OF AMERICA  
DEPARTMENT OF JUSTICE  
FEDERAL BUREAU OF INVESTIGATION  
WASHINGTON, D. C. 20535

MEMORANDUM



TO : DIRECTOR, FBI (100-441111)

FROM : SAC, NEW YORK (100-123456)

SUBJECT: [Illegible]



## DISCLAIMER

This report was prepared for the Ontario Ministry of the Environment as part of a ministry-funded project. The views and ideas expressed in this report are those of the author and do not necessarily reflect the views and policies of the Ministry of the Environment, nor does mention of trade names or commercial products constitute endorsements or recommendation for use.

## Introduction

The report was prepared for the purpose of providing information on the status of the project. The report was prepared for the purpose of providing information on the status of the project. The report was prepared for the purpose of providing information on the status of the project. The report was prepared for the purpose of providing information on the status of the project.



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- ◊ Newspaper Ad
- ◊ Sticker for the Blue Box
- ◊ Tweed OCC Trial Door-Hanger
- ◊ Frankford Household Paper Trial Flyer
- ◊ Original Problem Card
- ◊ Problem Cards (5)
- ◊ Blue Box Plus! Newsletter (4 pages)
- ◊ Blue Box 2000 Poster (2 pages)

## Blue Box Plus!

On September 24th, 1990 Quinte Regional Recycling launched the Blue Box Plus! recycling program. The purpose of the Blue Box Plus! demonstration program was to develop the necessary operational information needed so that existing programs could expand to include mixed plastics, OCC, and boxboard. A year was spent testing different methods of collecting and processing these materials, as well as developing new markets.

In addition to collecting newspapers, glass and metal containers, residents were provided with the opportunity to recycle all rigid plastic containers, boxboard, and corrugated cardboard. Plastic containers include plastic soft drinks, detergent, auto products, juice, bleach, shampoo, yogurt, ice cream, and other food containers. Boxboard includes a wide variety of materials such as cereal, soap, and shoe boxes, as well as milk cartons.

Quinte Regional Recycling is a project of the Centre & South Hastings Waste Management Board which is a coalition of 15 municipalities with a population base of 95,000. There are over 33,000 boxes distributed: 20,000 urban, 9,000 rural curbside, and 4,000 rural depot. The Blue Box Plus! demonstration program was established in conjunction with the Ontario Ministry of the Environment and OMMRI: Corporations in Support of Recycling.

### Summary

- **The public has an enormous willingness to recycle.**  
A great effort was requested of the public in terms of cleaning and sorting recyclable materials into different groups. They met this effort, and in surveys consistently asked to be able to recycle more materials.
- **Separation of several materials on the truck is a viable approach.**  
By the end of the demonstration, there were 7 compartments in the truck and 12 material streams marketed. In general, a curbside sort was found to be more efficient than an in-plant sort.
- **Adding new materials can be done efficiently.**  
Operating costs for collection and processing (exclusive of administration and capital) averaged \$144 per ton (after revenue) or \$25.52 per household — costs that are in line with other programs collecting fewer materials.
- **An aggressive attitude to recycling pays dividends.**  
Costs per unit recycled came down as new municipalities joined and other sectors became involved (ICI, apartments). The ICI sector accounted for 19% of the material processed, other municipalities for 8% of the material.
- **Existing infrastructure can handle the new materials.**  
Only minor modifications to processing facilities were needed to accommodate the new materials. Labour is the greatest cost increase, and there is little equipment on the market that can help reduce this. The number of collection vehicles required to service the area increased due to increased volume of materials collected.
- **Advertising & promotion is critical**  
Education/promotional materials play a critical role to convey the right message and to reinforce it throughout the program: the most successful formats are the poster/information card (ranked #1 in usefulness), newsletters, and newspaper articles.
- **Industry involvement is necessary for new materials**  
Co-operative market development with all industrial players and OMMRI has opened up a new and expanding market for boxboard.

## Some Other Observations

### Public Participation

- People are including the new materials (OCC, boxboard, rigid plastic) at a high participation rate, but a low capture rate.
- A Waste Composition Study indicated that of the residential waste stream, 25.76% is recyclable and 16.04% was captured (62.3% of the potential). Capture rate varied considerably by material (eg. 75% for news, ferrous, and PET; under 36% for HDPE, tubs, and boxboard).
- Residents are generally preparing material to specifications, i.e. in the right groupings.
- Level of contamination in boxboard is lower than expected. Most households are pulling out cereal box liners and rinsing milk cartons.
- Ongoing promotion increases the capture rate.
- Many householders are putting out partially-filled boxes, increasing set out rates.
- Some households tend to put all material in box rather than setting it outside the box in bags or bundles.

### Collection

- The 12 month average production was 325 lbs per household.
- Collection trucks were able to maintain over 1,000 passbys/truck-day in urban areas.
- There is not enough OCC generated by each household to justify a separate collection vehicle.
- News is the largest single material, and for the Quinte system it was best given its own compartment, and not mixed with boxboard. This reduced sorting time.
- OCC is also best kept separate from news: a box at the rear of the truck works well.
- Mixed plastic is best kept separate from cans. In general, curbside sorting is better than in-plant sorting.
- Apartment recycling is feasible for the new materials, although a custom designed 3-compartment bin makes the job easier.

### Processing

- The space, sorting areas, and staffing to handle the new materials can be accommodated within the existing plant.
- Because of the relatively small quantities of some materials (ie. PVC and tubs) a great deal of storage space is required at the processing facility for long periods of time before trailer load quantities are accumulated.
- Boxboard is a time-consuming sort. Plastics take even longer. A negative sort (removing contamination from the material stream) of the boxboard was the most efficient.
- Cans and plastic are best sorted away from the baler line (ie. not feeding directly into the baler. The accumulated material can be baled quickly.
- In today's market, ICI site-delivered material pays for itself and helps reduce costs of the facility.
- As more material is processed the cost per unit of material processed decreases.



## **Recycling Program Organization**

### **Centre & South Hastings Waste Management Board**

This is a 7-person Board set by 15 municipalities to implement 3R programs. The Board was established by the Centre & South Hastings Waste Management Steering Committee which is preparing a Waste Management Master Plan for the area. The Board is responsible for implementing the 3Rs, including the Blue Box program. The Board members were: Jean Smith (Chair), George Best (Vice-Chair), Georgina Thompson (Sec.-Tres.), Eldon Weiss, John Inglis, Jack McMurray, Tom Nobles.

### **HGC Management Inc.**

HGC is the contractor for the Blue Box program. It is responsible for operating both the collection and processing facility on behalf of the Board. Herb Lambacher is the president of HGC Management. Richard Barrett is the operations manager.

### **REIC Ltd.**

REIC has the contract for Recycling Co-ordinator for the Board and co-ordinated the demonstration program for MOE and OMMRI. Robert Argue is the principal involved.

### **Management Committee**

A Management Committee was established to oversee the demonstration program. It consisted of Robert Argue (REIC), Joe Hruska (OMMRI), and Vesna Guzina (MOE).

### **Operating Committee**

This was established as a working committee for the demonstration year. It consisted of Robert Argue (REIC Ltd.), Cheryl Nash (RIS), Jane Willmore and Nyle Ludolph (OMMRI), Carol Hunter & Lisa Courtney (The McConnell/Weaver Group), Herb Lambacher and Richard Barrett (HGC Management).

### **Ontario Ministry of the Environment**

The MOE was a prime sponsor of Blue Box Plus! and have established guidelines of 25% waste diversion by 1992, and 50% diversion by the year 2000.

### **OMMRI: Corporations in Support of Recycling**

OMMRI was a prime sponsor of Blue Box Plus! and is a not-for-profit organization created by Ontario industry to support and fund waste reduction initiatives.

### **Plant Staff**

- 1 Operations Manager
- 1 Office staff/Hotline staff
- 1 Foreman/skid-steer operator
- 1 Baler operator
- 5 material handlers
- 7 drivers
- 1 driver/processing operator/maintenance

By the end of the demonstration year, the staff had grown to include 5 additional material handlers as part of an extra shift needed to handle material from ICI and apartments.

### **For further information:**

Robert Argue  
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RR #4 Stirling, Ont. K0K 3E0  
(613) 395-5392 fax (613) 395-0367

## Centre & South Hastings



Facility services population base of 120,000

Blue Box Plus! 16 municipalities

◇ Urban curbside: 21,000 hhlds

◇ Rural curbside: 9,100 hhlds

◇ Rural depots: 4,000 hhlds

Conventional Blue Box: 15 municipalities,

14,000 hhlds

## Description of Collection Program

Eight trucks were used to provide curbside collection from approximately 30,000 single-family households and low-rise apartments units, and to service 3 rural drop-off depots. The original plan, before the addition of the new materials, called for 6 trucks. Originally, the trucks had 4 compartments. This was modified, and for the first several months of the program recyclables were sorted into 5 different compartments. By the end of the demonstration, the number of compartments had grown to 7.

Blue Box set-out rates were measured in two participation studies and appear to be higher than for regular Blue Box programs. It is assumed that this is because the addition of the new materials fills the box up faster. Pass-bys averaged around 1,035 households per truck for urban areas and 762 households per truck for rural areas. These figures can vary considerably from one area to another.

## Collection Statistics

### Truck pass-by rates — sample routes:

- ◇ Trenton: 250 kms. of routes. 5 truck days for 5705 hhld = 1,141 passbys/truck day.
- ◇ Belleville: 12 truck days for 12,640 hhld = 1,053 passbys/truck day
- ◇ Trenton "Green" route (a specific route monitored throughout the demonstration):
  - 8.5 hrs collection time: 1,140 passbys
  - 10 hrs driver time (including travel and dumping): 1,140 passbys
  - 8.5 hrs collection time: 708 pick-ups (setout rate of 62%) or 83 pick-ups/hour
- ◇ Rural routes:
  - Sidney Township: 800 route-kilometers (including travel to and from the recycling plant), 6 truck days, average 953 passbys/truck-day.
  - Huntingdon Township: 230 km, 1 truck-day, 200 pick-ups

### Stops per load

- ◇ Number of pick-ups until full: 400 to 500
- ◇ Average weight per full truck: 3 tons (net)

### Set Out Rate

- ◇ Most communities are consistently at 50%+ set-outs/week.
- ◇ Trenton "Green" route averages 62% set-outs/week (has topped 70%)
- ◇ Tweed averages 50%
- ◇ Madoc averages 35%

### Collection Times

# of truck days per week to service the program: 36  
Drivers now average 50 – 52 hr/wk

### Depot Collection

Tyendinaga averages (Jan-Mar) 112 lb/hhld/yr  
Hungerford averages (Feb-Mar) 161 lb/hhld/yr

#### *As a comparison:*

Tweed Village (curbside) averages 250 lbs/hhld/yr  
Frankford Village (curbside) averages 254 lb/hhld/yr  
Total program for the same time period averaged 306 lbs/hhld/yr.

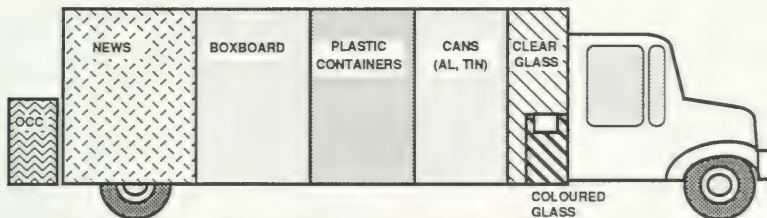
### Material Weights

Average weight/set out: 11 lbs

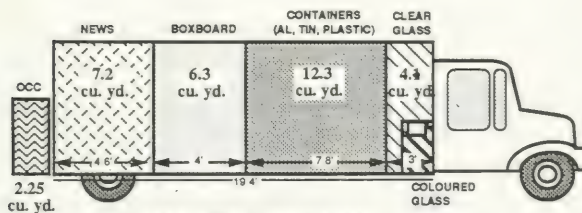


## Collection Equipment

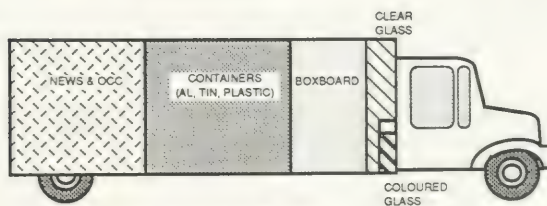
- 8 trucks**  
 Labrie top-loading, one-man trucks. Single side-loading, dual-drive, 3 partitions. International chassis, model 4900. 1 compartment site-modified for coloured glass. A box for OCC hangs off the back of the trucks. Towards the end of the demonstration, a 4th partition was added to provide separation for plastic and cans.
- depot containers**  
 Otto MSD 95 Gallon Domestic Cart for glass, cans/plastic  
 Poly-weave bags: used as a liner for the depot carts that contain lightweight material such as plastic containers and cans. When full, the re-usable bags are tied off and stored. This reduces the number of depot carts required.  
 Trailer body used to store paper products.
- blue boxes**  
 A-1 Products 12 gallon container. (Trial with boxes & bags was conducted in one building.)
- apartment containers**  
 A-1 Products 8 gallon container. Large (10'x3'x3') metal containers with 3 compartments were made for apartment collection/storage of glass, boxboard, and OCC.



Final Compartment Configuration



Modified Configuration



Original Configuration

## Description of Processing Centre

The processing centre is used to separate, clean, and prepare the material for shipping to market. Generally speaking, it was the aim of the processor to at least initially sort each recyclable to its highest grade, in order to determine its potential value. Depending on concerns, such as available storage, processing/handling costs, volume of materials available, the degree of sorting may have been decreased to a less intensive level.

The main plant is 175' by 85' clear span (14,875 sq. ft.). The only fixed feature is the conveyor pit. All other features are flexible in placement and configuration. Except for the magnetic separator and conveyor, all other sorting operations are performed manually. A variety of sorting configurations for boxboard, plastic and cans, OCC and news were tested. The preferred system used a large sorting table that holds a loader-bucket worth of material, and is set up for 2 – 3 person operation. It is off the ground and sloped to let gravity help the sorter. Mobile cages are used to receive and store separated materials that don't go directly to the conveyor pit. The cages hold enough material for a bale. When full, they are wheeled to the conveyor pit and emptied.

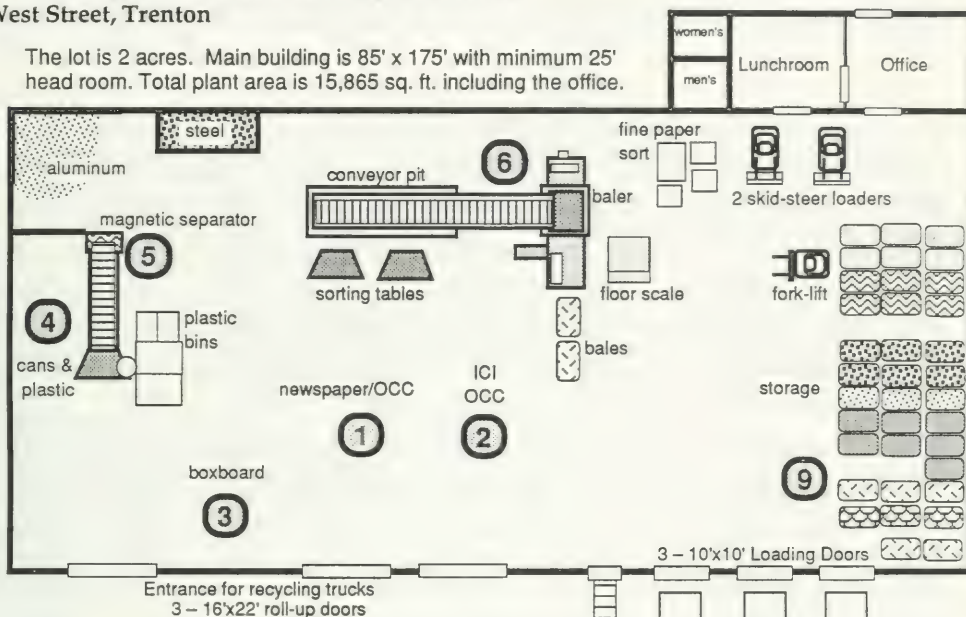
## Processing Centre Equipment

- **baler**  
An Economy wide-mouth horizontal baler, model # 5042E. System includes auto-tie, fluffer, in-floor conveyor, 60 HP main motor, 9" piston. The baler will process newspaper, cans (steel and aluminum), plastics, and cardboard. A modification was made to the receiving mouth to make reception of OCC easier.
- **magnetic separator/conveyor**  
Made by Tim-Tech to specifications. Conveyor is 20'6" long, 66" high. Belt is 30" wide, speed 75 ft. per min. Head pulley contains a 20" permanent magnet.
- **2 skid-steer loaders**  
Case 1845C, 60 HP, solid tires, catalytic convertor. One with regular bucket, one with grapple-bucket. Set of forks.
- **fork-lift**  
Clark propane, model GCX 20, solid tires, catalytic muffler.
- **floor scale**  
Active Scale model ASF-56-6. Platform 6'x6', 6000 kg capacity. With UMC 600 digital indicator. Used to weigh bales as they come off the baler.
- **truck scale**  
Active Scale. Platform 10'x70'. Printer and indicator and video. Used to weigh in-coming and out-going trucks.
- **wood/wire cage/bins**  
Site-built cages receive plastic containers sorted by resin type. Cages hold baling quantities, have wheels to roll to conveyor pit, and trap-door with a sloped bottom for emptying.
- **4 sorting tables**  
Wood sorting tables site-built. 2 for ONP/OCC, 1 for boxboard, 1 for plastic/cans. Tables have wide mouth and capacity for full bucket-load. The sorting systems used were modified throughout the demonstration.

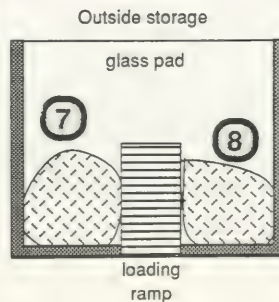
# Quinte Regional Recycling Facility

270 West Street, Trenton

The lot is 2 acres. Main building is 85' x 175' with minimum 25' head room. Total plant area is 15,865 sq. ft. including the office.



- ① **Newspapers and OCC** are dumped on the floor, cleaned on a sorting table, and baled.
- ② **Corrugated cardboard** (commercial) is baled.
- ③ **Boxboard** is dumped and stored on the floor then sorted and cleaned at the baler.
- ④ **Plastic containers** are hand-separated from **cans** into 2-4 plastic types, stored, and baled.
- ⑤ **Magnetic head** separates the steel from the aluminum cans. Each type is baled separately.
- ⑥ **Baler** bales newspaper, boxboard, cardboard, metal, and plastic.
- ⑦ **Clear glass** is dumped on a pad and checked for contamination. Glass is shipped in trailers.
- ⑧ **Coloured glass** is dumped and checked for contamination in a separate bay.
- ⑨ **Bales** are loaded directly onto trailers for shipment to markets or stored waiting a full load.





## QRR Production Update

	1	2	3	4	5	6	7	8
	total to date	BB+ to date	BB+ 12 m	% BB+	lbs/hhld/yr			
					12 month	Apr-May	W-C Cap.	W-C Avail
news	2727.25	2399.62	2,114.95	41.31%	134.28	149.09	114.09	152.61
glass	1611.94	1433.69	1,307.16	25.53%	82.99	82.22	65.94	104.31
steel	920.54	817.93	764.24	14.93%	48.52	47.96	57.67	76.47
aluminum	66.77	59.60	54.37	1.06%	3.45	3.34	6.05	9.16
PET	78.18	69.12	61.52	1.20%	3.91	4.26	7.76	10.27
HDPE	117.91	117.91	109.45	2.14%	6.95	7.25	6.34	20.76
PVC	4.39	4.39	3.79	0.07%	0.24	0.06	1.03	2.00
tubs	8.68	8.68	6.98	0.14%	0.44	0.24	2.29	7.17
boxboard	327.84	327.84	309.07	6.04%	19.62	24.40	26.85	74.96
polycoat	16.01	16.01	13.31	0.26%	0.85	0.89	1.75	7.73
OCC	412.15	412.15	374.91	7.32%	23.80	24.44	39.98	61.81
total	6,291.66	5666.9	5,119.75	100%	325.06	344.15	329.75	527.25
Blue Box Plus! data for 12 months					Waste Comp data			

ICI OCC	1,168.66
ICI trim waste	212.87
ICI fine paper	59.20
ICI tin/glass	35.48
total ICI	1,476.21

total material	7,767.87
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This chart provides a summary of material production for 1 year. Columns 1 and 2 are total production, including ICI material and other (non-Blue Box Plus!) municipalities. Columns 3 through 8 are for Blue Box Plus! materials from Centre & South Hastings.

- 1 Total production in tons of QRR facility Sept. 24, 1990 to October 31st, 1991
- 2 Total production in tons Blue Box Plus! Sept. 24, 1990 to October 31st, 1991
- 3 Total production in tons Blue Box Plus! for 12 month period: November '90 to October '91
- 4 Percentage of Blue Box Plus! material by weight over 12 months
- 5 lbs/hhld/yr for Blue Box Plus! for 12 month period based on 31,500 hhlds
- 6 lbs/hhld/yr for Blue Box Plus! for 2 month period Apr & May '91 (Waste Comp)
- 7 lbs/hhld/yr for Blue Box Plus! based on capture rate during Waste Comp study (Apr & May '91)
- 8 lbs/hhld/yr for Blue Box Plus! based on available material during Waste Comp study (Apr & May '91)

## Materials

### Boxboard

#### Collection

The public was asked to recycle all boxboard material, including soap and cereal boxes. Inner liners were to be removed, boxes flattened, and the material placed in a bag beside or on top of the Blue Box. It was found that the material didn't compress well in the bags and spilled out too easily. The message changed to ask the public to place the broken down material in boxboard boxes (i.e. cereal or detergent boxes). This allows for much greater compression of the material and thus less volume in the truck.

Originally, boxboard was mixed in the truck with other paper (ONP and OCC). This slowed the sorting of ONP considerably and so boxboard was given its own compartment on the truck. Typically, it was a 4 ft. section that holds 6.3 cu. yd. or about 20% of the total truck volume. The material was dumped in a separate pile within the plant.

#### Sorting

Initially boxboard was hand sorted into 4 grades:

- polycoat (milk cartons and frozen food boxes)
- boxboard (cereal and detergent boxes)
- printed bleach (tissue boxes)
- carrier (wet strength)

After the first week of operation, it was determined that the low volume of printed bleach did not justify a separate sort.

For the first 6 months of the demonstration program, boxboard was processed at a dedicated sorting station. Material was dumped on the sloped sorting table by the loader. Material was positively sorted and stored in one of 3 bins: polycoat, boxboard, or garbage (plastic or contaminated boxboard). This process was very time-consuming, requiring approximately 15 person-hours per ton of boxboard handled. When the bins were full, they were wheeled to the conveyor pit and the material baled.

During the last half of the demonstration, the level of boxboard processing was decreased. Instead of handling boxboard at a separate station, contaminants were removed from the boxboard through a negative sort, using the OCC and ONP sorting tables. Boxboard was placed on the tables by the loader and sorted directly onto the feed conveyor for baling. About 5 or 6 sorters were used to remove the polycoat, plastic bags and other contamination. This system reduced the sorting time by 2/3rds.

average bale for boxboard:	2145 lbs.	42"x42"x60"
average bale for polycoat:	1060 lbs.	42"x42"x30"

On two occasions, loads were analysed to examine the type of box in the boxboard stream:

	7-Mar Weight lb	14-Mar Weight lb	7-Mar % by weight	14-Mar % by weight	average % by weight
Laundry Soap	74	27	18%	11%	14%
Cereal Boxes	80	42	20%	17%	18%
Other food (non-waxed)	141	84	35%	33%	34%
Other food (waxed)	18	15	4%	6%	5%
Pet food	13	12	3%	5%	4%
Milk cartons	19	22	5%	9%	7%
Toiletries etc	8	12	2%	5%	3%
Toiletries (with cellophane)	12	9	3%	4%	3%
Liquor boxes	1	0	0%	0%	0%
Cigarette boxes	10	8	2%	3%	3%
Hardware	32	9	8%	4%	6%
Shoe Boxes	0	13	0%	5%	3%
Sub-Total	408	253	100%	100%	100%
Other recyclables/Waste	127	59	24%	19%	21%
Total	535	312			
Number of items	3,008				
Number of items in 1 ton	14,745				

## Markets

The public has responded well to directions to remove inserts such as liner bags. Although it has been Quinte Recycling's position that whatever is attached to a box (tear strips, handles, spouts, etc.) should not be viewed as a contaminant. Items that contain a high percentage of cellophane, plastic and metals were removed during the sort.

The Paper and Paperboard Packaging Environmental Council (PPEC) was formed to focus on environmental issues affecting paper-based packaging. Its (116) member companies include boxboard manufacturers and converters. PPEC, with OMMRI: Corporations in Support of Recycling, Lever Brothers, Proctor & Gamble Inc., Kraft Foods, Kelloggs, Lawson Mardon, HGC Management, Ramsay & Associates, and Health and Welfare Canada in the OMMRI Boxboard Task Group (BTG), have spearheaded a series of trials to recycle boxboard captured from the municipal waste stream and to develop markets for these products

Sample bales of boxboard were sent to different mills to obtain feedback on the material. Shipments were made to the following mills:

- ◇ Paperboard Industries (Trenton)
- ◇ Strathcona Paper (Napanee)
- ◇ Paperboard Industries (Toronto)
- ◇ Sonoco (Brantford)
- ◇ Fraser (Edmonston, NB)
- ◇ Cascades (East Angus, Que)
- ◇ Rittman's (Rittman, Ohio)
- ◇ Daishowa Forest Products Ltd. (Quebec City)



There are many different grades of boxboard. Within each grade, different types of inks, coatings, and glues are used, and in some instances secondary materials such as plastic film and metal are affixed to the box itself. The attached contamination of greatest concern to the recycling mills is the hot-melt glues used to seal cartons and boxes, and the wax and polyethylene coatings used for product protection. Tear tapes/strips can also tangle a mill's impeller pumps and threaten a costly plant shutdown.

In order to improve the recyclability of boxboard, an investment in technological development and package redesign is necessary. This could include:

- use of new formulation adhesives that can be handled by the mills.
- reduction/elimination of tear strips, plastic handles, metal spouts and other attached contamination.
- reduction/elimination of foil, cellophane and plastic windows.
- design of boxes to facilitate recycling (i.e. easier to break down).

PPEC is exploring the possibility of using Quinte fibre with foodboard (the predominant use of boxboard), using it to make building materials, composting, and the feasibility of converting such fibre into ethanol.

In conjunction with Lever Brothers, Procter & Gamble, and Lawson Packaging, PPEC has already developed a detergent/chipboard market of about 10,000 tonnes. In one trial, 15 tons of boxboard were fed in the Strathcona Paper plant at a 25% ratio to produce 200,000 detergent boxes. Another trial involved 50 tons of Quinte material in a 24 hour run at a 25% ratio. Preliminary results indicated a successful trial. The OMMRI Boxboard Task Group with PPEC have produced a report on the various Quinte boxboard trials and market development activities. The report can be obtained from: PPEC, 701 Evans Ave, Ste 400, Etobicoke, ON, M9C 1A3 or OMMRI: Corporations in Support of Recycling, 40 King Street West, Suite 3005, Toronto, Ontario, M5H 3Y8.

One issue that is emerging from the trials is the level of sorting necessary to meet different specifications. A ton of mixed boxboard contains approximately 15,000 separate cartons representing a wide variety of fibres, coatings, and attached-contamination. A basic sort to provide a relatively clean product is very time consuming, currently accounting for 35% of the Quinte plants sorting time. (News and OCC accounts for 20%, plastics and cans for 45%). This figure could rise significantly if a higher level of sorting was required.

Alternatively, it is possible to specify that only certain generic types of boxes (eg soap and cereal boxes) can be put in the Blue Box. This could reduce contamination although it would also reduce recovery rates and would result in a more complicated message being delivered to the public.

## **Polycoat**

Gable-end milk and juice cartons were included in the boxboard stream. The public was asked (with success) to rinse and flatten the containers. The cartons were removed from the boxboard stream during the sort and stored loose in gaylords until baling quantities were reached.

The material accumulated slowly. Only one partial shipment of 12.2 tons was made to a mill in Ohio (the Ohio Pulp Mill) that handles polycoat material (no Ontario market was found). The material was well received and was "clean". It was worth \$100 US per ton.

## Mixed Paper Trial

Mixed paper is perhaps the largest single category of “unaddressed” household waste and therefore represents a large volume/weight of material. The major problems associated with mixed paper concern the wide variety of paper types and the great potential for contamination. By asking householders to stuff their mixed paper into boxboard boxes, householders are able to divert a major portion of their waste stream, in a manner that is relatively easy for the operator to handle. Mixed paper may enhance the boxboard stream by adding higher-grade fibres and diluting the ratio of hot-melt glue, the major contamination in the boxboard stream.

A trial was conducted that included all other mixed paper in the boxboard stream. OCC and ONP (collected separately) and soiled paper were excluded. The Village of Frankford (875 households) was chosen for the trial, which started April 18, 1991. Households received a flyer outlining the paper products that can be added to the boxboard stream. It itemized samples of inclusions and exclusions. Excluded were soiled or contaminated paper, tissues, books, and any paper heavily contaminated with plastic (or the plastic could be removed). Magazines were added to the newspaper stream.

Material collected during one week was separated as to type:

Household Paper/Boxboard Sort		
	lbs	%
Boxboard	258	61.4%
Polycoat	24	5.7%
OCC	41	9.8%
ONP	21	5.0%
Junk mail	76	18.1%
total	420	100%

Initial feedback from the industry is that the material appeared to be good, with better fibre quality and less contamination than the regular boxboard mix. However, the size of the trial did not allow enough material to accumulate for full mill testing.

On two occasions, loads were analysed to examine the type of box in the boxboard stream:

	7-Mar Weight lb	14-Mar Weight lb	7-Mar % by weight	14-Mar % by weight	average %
Laundry Soap	74	27	18%	11%	14%
Cereal Boxes	80	42	20%	17%	18%
Other food (non-waxed)	141	84	35%	33%	34%
Other food (waxed)	18	15	4%	6%	5%
Pet food	13	12	3%	5%	4%
Milk cartons	19	22	5%	9%	7%
Toiletries etc	8	12	2%	5%	3%
Toiletries (with cellophane)	12	9	3%	4%	3%
Liquor boxes	1	0	0%	0%	0%
Cigarette boxes	10	8	2%	3%	3%
Hardware	32	9	8%	4%	6%
Shoe Boxes	0	13	0%	5%	3%
Sub-Total	408	253	100%	100%	100%
Other recyclables/Waste	127	59	24%	19%	21%
Total	535	312			
Number of items	3,008				
Number of items in 1 ton	14,745				

## Markets

The public has responded well to directions to remove inserts such as liner bags. Although it has been Quinte Recycling's position that whatever is attached to a box (tear strips, handles, spouts, etc.) should not be viewed as a contaminant. Items that contain a high percentage of cellophane, plastic and metals were removed during the sort.

The Paper and Paperboard Packaging Environmental Council (PPEC) was formed to focus on environmental issues affecting paper-based packaging. Its (116) member companies include boxboard manufacturers and converters. PPEC, with OMMRI: Corporations in Support of Recycling, Lever Brothers, Proctor & Gamble Inc., Kraft Foods, Kelloggs, Lawson Mardon, HGC Management, Ramsay & Associates, and Health and Welfare Canada in the OMMRI Boxboard Task Group (BTG), have spearheaded a series of trials to recycle boxboard captured from the municipal waste stream and to develop markets for these products

Sample bales of boxboard were sent to different mills to obtain feedback on the material. Shipments were made to the following mills:

- ◇ Paperboard Industries (Trenton)
- ◇ Strathcona Paper (Napanee)
- ◇ Paperboard Industries (Toronto)
- ◇ Sonoco (Brantford)
- ◇ Fraser (Edmonston, NB)
- ◇ Cascades (East Angus, Que)
- ◇ Rittman's (Rittman, Ohio)
- ◇ Daishowa Forest Products Ltd. (Quebec City)



There are many different grades of boxboard. Within each grade, different types of inks, coatings, and glues are used, and in some instances secondary materials such as plastic film and metal are affixed to the box itself. The attached contamination of greatest concern to the recycling mills is the hot-melt glues used to seal cartons and boxes, and the wax and polyethylene coatings used for product protection. Tear tapes/strips can also tangle a mill's impeller pumps and threaten a costly plant shutdown.

In order to improve the recyclability of boxboard, an investment in technological development and package redesign is necessary. This could include:

- use of new formulation adhesives that can be handled by the mills.
- reduction/elimination of tear strips, plastic handles, metal spouts and other attached contamination.
- reduction/elimination of foil, cellophane and plastic windows.
- design of boxes to facilitate recycling (i.e. easier to break down).

PPEC is exploring the possibility of using Quinte fibre with foodboard (the predominant use of boxboard), using it to make building materials, composting, and the feasibility of converting such fibre into ethanol.

In conjunction with Lever Brothers, Procter & Gamble, and Lawson Packaging, PPEC has already developed a detergent/chipboard market of about 10,000 tonnes. In one trial, 15 tons of boxboard were fed in the Strathcona Paper plant at a 25% ratio to produce 200,000 detergent boxes. Another trial involved 50 tons of Quinte material in a 24 hour run at a 25% ratio. Preliminary results indicated a successful trial. The OMMRI Boxboard Task Group with PPEC have produced a report on the various Quinte boxboard trials and market development activities. The report can be obtained from: PPEC, 701 Evans Ave, Ste 400, Etobicoke, ON, M9C 1A3 or OMMRI: Corporations in Support of Recycling, 40 King Street West, Suite 3005, Toronto, Ontario, M5H 3Y8.

One issue that is emerging from the trials is the level of sorting necessary to meet different specifications. A ton of mixed boxboard contains approximately 15,000 separate cartons representing a wide variety of fibres, coatings, and attached-contamination. A basic sort to provide a relatively clean product is very time consuming, currently accounting for 35% of the Quinte plants sorting time. (News and OCC accounts for 20%, plastics and cans for 45%). This figure could rise significantly if a higher level of sorting was required.

Alternatively, it is possible to specify that only certain generic types of boxes (eg soap and cereal boxes) can be put in the Blue Box. This could reduce contamination although it would also reduce recovery rates and would result in a more complicated message being delivered to the public.

## **Polycoat**

Gable-end milk and juice cartons were included in the boxboard stream. The public was asked (with success) to rinse and flatten the containers. The cartons were removed from the boxboard stream during the sort and stored loose in gaylords until baling quantities were reached.

The material accumulated slowly. Only one partial shipment of 12.2 tons was made to a mill in Ohio (the Ohio Pulp Mill) that handles polycoat material (no Ontario market was found). The material was well received and was "clean". It was worth \$100 US per ton.

## OCC and ONP

The public was asked to break down OCC boxes and bundle them no larger than 30"x30"x8", a dimension that is suitable for the side hopper. OCC was originally collected in the same truck compartment as ONP. (A large amount of OCC was also received from ICI generators, but this was tracked separately from the curbside material.) The OCC/ONP mix was loaded onto the sorting tables by the skid-steer loader. Two tables were used to keep pace with feeding the baler. The trial utilizing the OCC box attached to the rear of the truck proved successful and all trucks were modified to accept the boxes. Telephone books were accepted with ONP and were accepted in the ONP mix by the mill.

average OCC bale:	1462 lbs.	42"x42"x60"
average OCC shipment:	20 tons	
average ONP bale:	1800 lbs.	42"x42"x60"
average ONP shipment:	20 tons	

### Monthly OCC collection trial

location: Tweed

start-up date: December 7, 1990

length of study: 6 months

Residents were asked to put out OCC on the 1st pick-up day of each month. OCC was not picked-up at any other time. Bundling requirements and size restrictions were lifted.

- ◇ Collection averages 15 lb/hhld/yr.
- ◇ Between 6-13% of households in Tweed set out OCC for monthly collection. (this compares with 27% for Trenton route during the Dec-Jan participation study)
- ◇ Regular Blue Box collection (without OCC) averages 5 hours for 722 passbys and an average of 365 pick-ups or 144 passbys/hr and 73 pick-ups/hr.
- ◇ OCC collection time suggests no time savings with the extra truck.
- ◇ Put-out rate is sensitive to regular advertising.

*It was concluded that monthly OCC collection did not result in savings and the trial was discontinued in July, 1991.*

### OCC box

location: tested on 2 (of 8) trucks

start-up date: November, 1990

An open-topped box of 2.25 cu. yd. capacity was constructed and hung from the back of the truck for OCC collection. The box is removed with the forktruck when the truck arrives at the facility.

- ◇ The box was very popular with the drivers.
- ◇ There is a slight increase in the length of time to cover a route.
- ◇ The box is popular with the sorters as most of the OCC is kept out of the news stream.

*It was decided that the incremental time penalty during collection is made up in convenience and greater capacity in the truck. All 8 trucks were outfitted with the OCC box.*

## Rigid Plastic Bottles and Tubs

Rigid plastic containers were mixed with cans in the truck. At the plant, the material was lifted onto a sorting table where the plastic was hand-separated (positive sort) into resin type and stored in bins until baling quantities were reached. The remaining cans were moved by conveyor over a 20" magnetic head to separate the steel from the aluminum.

Plastic containers were sorted into 4 resin types:

-PET    -HDPE    -PVC    -tubs

Over the course of the demonstration, the sorting system changed depending on specifications from the market. At one point, the market would accept a mixed bale containing all rigid plastics, minus PET. Accordingly, only a 2-stream sort for plastics was needed: PET, and others, which is primarily HDPE with PVC and tubs included. The market for tubs requires further development.

average bale for:	PET: 432 lbs.	42"x42"x40"
	HDPE: 525 lbs.	42"x42"x45"
	PVC: 417 lbs.	42"x42"x35"
	tubs: 338 lbs.	42"x42"x35"

About 45% of all in-plant sorting time was used to pull plastic by resin type from the cans (boxboard 35%, ONP and OCC 20%). A trial sort was tried where only PET and HDPE were separated from the mixed cans, with the remaining plastics pulled from the aluminum after the steel has been magnetically separated. This did not result in any time or quality savings.

A trial separating plastic into its own compartment on the truck was tried with success. The time required to separate the plastic from the cans at curbside was insignificant, while the savings at the sorting station were pronounced. All trucks were modified with a 4th partition to allow for this separation.

### Resin types

The following chart, "QRR Generation" represents the breakdown by resin type based on either collection or from the Waste Comp study. For example, PET shows less is available than actually captured since it had a higher capture rate. The chart, "Dupont Sort of 'Tubs'" is based on a sort of a single Quinte bale, conducted by Dupont.

QRR				
	6 month collection	Waste Comp. Study		
		Captured		Available
PET	36.7%	44.5%		25.5%
HDPE	53.3%	36.4%		51.6%
PVC	3.3%	5.9%		5.0%
Tubs	6.8%	13.1%		17.8%
	100%	100%		100%

DUPONT Sort of "TUBS"		
PE	HDPE	28.6%
	LDPE	27.0%
PP		34.3%
Mixed		5.4%
PS		1.5%
PET		0.4%
PVC		0.9%
Cans		1.5%
Misc.		0.3%
		100%



## Metal Cans

The cans were originally mixed in the truck with plastic containers. The cans were pushed onto the conveyor after the plastic was removed and they travelled 20' to pass over a magnetic head. The aluminum and steel were separately stored until baling quantities were reached. Aluminum was double-checked for contaminants as it was loaded onto the baler conveyor. Steel was stored in bales until shipping quantities were reached. The bales were broken open and the loose cans loaded into a dump trailer.

By the end of the demonstration, cans were put in their own compartment of the truck.

average steel bale:	1097 lbs.	42"x42"x60"
average steel shipment:	12 tons	
average aluminum bale:	856 lbs.	42"x42"x60"
average aluminum shipment:	10 tons	

## Glass

Glass was colour-separated on the truck. The compartment closest to the cab of the truck was modified to accept separated glass: clear glass deposited via the hopper; coloured glass in a steel compartment within the main compartment and accessed by hand loading via a hole in the side of the truck.

The glass is dumped separately onto a concrete pad/bunker outside. The load is double-checked for contamination and then pushed to the back of the bunker. When shipping volumes are reached, a dump trailer pulls behind the bunker and the glass is loaded (via a ramp) by a skid-steer loader. Shipping quantities are around 30+ tons a load.

## Participation Study

Over the course of the demonstration program, two participation studies were conducted, each covering an eight week period. Through these studies, information was gathered pertaining to the fullness of box set outs, the variety of materials included in the box, as well as the frequency of set outs. Identical studies were also conducted simultaneously in two communities operating traditional blue box programs. These control studies allowed for a direct comparison of the two types of programs, avoiding the complications of relying on outdated information or data that may not have been collected in the same manner.

### Description of Study

At the beginning of the demonstration program, one truck route in the Trenton area was selected for more intense monitoring. It was decided that this route would be used as the location for the participation study. A total household count and street-by-street address lists were compiled. For an eight week period, a data collector accompanied the driver and recorded on a prepared sheet the following information for each household on the route:

- a) blue box set outs
- b) fullness of the box
- c) contents of the box, including contaminants

Truck weights for the Trenton route and the second control study, South Simcoe, were also obtained.

The locations for the two control studies were selected for different reasons. The Bruce County and Area recycling program, of which the Town of Kincardine is a member, started recycling just two weeks after the launch of the Quinte program. Traditional blue box recyclables are collected as well as rigid plastic containers. Like Centre South Hastings, Kincardine residents are not likely to subscribe to one of the large daily newspapers. All recyclables are sorted by type at the curb. The most significant difference between the Quinte and Bruce area programs is that Bruce Area households use a larger capacity blue box than that used by the Quinte program. It is believed that this difference in size affected set out rates.

The South Simcoe recycling program has been in operation for over 4 years, considerably longer than both the Quinte and the Bruce area programs. Evidence of this was reflected in the extremely high participation rates. Traditional blue box recyclables as well as aluminum foil are collected co-mingled, which results in less time spent sorting at the curb.

The second Quinte survey contained fewer households than the first survey (1016 vs 1140) as the two streets containing the waste composition households were left out. Over the time between surveys, the Quinte participation went up (86.4% to 89.1%) while the contamination went down (28% to 22%).

## Participation/Collection Monitoring Study

	Dec. 6 – Jan. 24		Apr. 4 – May 23	
	Quinte	Kincardine	Quinte	S. Simcoe
<b>No. of households</b>	<b>1140</b>	<b>1135</b>	<b>1016</b>	<b>735</b>
<b>Participation</b> • at least once in 8 week period	<b>86.4%</b>	<b>84.8%</b>	<b>89.1%</b>	<b>98.5%</b>
<b>Average # of setouts in 8 weeks</b>	<b>4.75</b>	<b>2.95</b>	<b>5.10</b>	<b>4.00</b>
<b>Setouts containing:</b>				
• OCC	27%	–	26%	–
• boxboard	65%	–	66%	–
• plastics	65%	78%	74%	41%
• ONP	64%	64%	71%	80%
• cans	89%	93%	91%	98%
• glass	70%	86%	74%	81%
<b>% of participating hhlds that set out:</b>				
• boxboard	89%	–	88%	–
• OCC	69%	–	68%	–
• plastics	81%	–	95%	–
<b>% with some form of contamination</b>	<b>28%</b>	<b>31%</b>	<b>22%</b>	<b>30%</b>
• paper related	37%	37%	45%	44%
• plastic related	29%	29%	28%	36%
• food or garbage	11%	11%	8%	8%
• unacceptable glass	8%	8%	8%	6%
• multi-layered packaging	8%	8%	1%	7%
• unacceptable metal	4%	4%	8%	6%
• wood related	3%	3%	2%	2%

- Contamination types add up to more than 100% as some boxes contained more than 1 type of contamination.
- Contamination included fine paper, kraft paper, foam and film plastic, non-container glass, scrap metal and wood.

## Waste Composition Study/Survey

A Waste Composition Study was conducted to identify the materials in the household stream — both Blue Box materials and garbage. The purpose of the Waste Comp was two-fold: identify the capture rate of Blue Box materials by material type and function use, that were not being separated from regular garbage; and to generate immediate and accurate residential waste composition data specific to the Centre & South Hastings area, which could be useful for planning future areas of program expansion.

For an eight week period in April & May, 1991, garbage and blue box contents from 50 households were collected and sorted into 30 categories of recyclables and 25 categories of other waste. The results are summarized in the following two tables. These 50 households were located in the participation study area, and were selected to proportionally represent three different levels of Blue Box participation. These levels of participation are as follows:

- a) households that participated more than four times over the first 8-week participation study (Type 5)
- b) households that participated 1–4 times over the 8-week participation study (Type 1)
- c) households that did not participate at all during the first phase of the participation study (Type 0)

During collection, the contents of individual households Blue Boxes were emptied into a clear plastic bag, and labelled Type 5, 1, or 0. Garbage bags were also marked according to household type. It should be noted here that large bulky items were not picked up by the study crew, but their presence at the curb was recorded on the weekly collection form.

### Results

- Blue Box Plus! materials represented 25.76% of the residential stream. This is less than other areas might expect because of a relatively low newspaper stream (7.42%)
- Capture rate of Blue Box Plus! materials averaged 62.3%.
- Capture rate for materials varied considerably, from a high of 75% for news, ferrous, and PET, to under 36% for HDPE, tubs, and boxboard.
- Total household stream (Blue Box plus garbage) was 2058 lbs./hhld./year.
- Capture rate improved significantly (11.7%) in the second 4-week period following distribution of a newsletter.
- Yardwaste was less than that indicated in the full-year waste comp study in Guelph.
- The results were comparable to waste composition studies conducted recently in Guelph and one conducted in Barrie in 1989.
- The amount of film plastic in the waste stream is significantly higher than is estimated by the plastic industry in the Peterborough report.
- The weight of diapers and other sanitary is greater than other waste comp studies.
- A survey of 40 of the participating households was conducted after the Waste Comp Study. Among the findings:
  - ◊ there were 5 children in diapers in the 40 households
  - ◊ there was an average of 3.15 people per household
  - ◊ 18 per cent of the households composted to some extent
  - ◊ 75% of those working outside the home recycled at work
  - ◊ 18% kept their Blue Box in the kitchen, 47% kept it outside
- The recyclable portion under Blue Box 2000 (see page 32) plus the compostables account for 78% of the residential waste stream.



## Waste Composition Study: Blue Box Materials

50 hhlds for 8 weeks

material	type	Total Recyclables (lbs) WEEKS 1 - 8			Captured lbs/hhld/yr	Available lbs/hhld/yr	Recyclables as % of hhld waste
		B-Box	Garb.	%			
<b>News</b>		<b>877.62</b>	<b>296.29</b>	<b>74.8%</b>	<b>114.09</b>	<b>152.61</b>	<b>7.42%</b>
<b>Glass</b>	softdrink (deposit)	10.46	3.65	74.1%	1.36	1.83	0.09%
	softdrink (non-deposit)	28.53	11.97	70.4%	3.71	5.27	0.26%
	LCBO beverage	182.32	87.64	67.5%	23.70	35.09	1.71%
	other beverage	77.71	28.55	73.1%	10.10	13.81	0.67%
	food	207.08	151.53	57.7%	26.92	46.62	2.27%
	non-food	1.14	11.84	8.8%	0.15	1.69	0.08%
	<b>subtotal</b>	<b>507.24</b>	<b>295.18</b>	<b>63.2%</b>	<b>65.94</b>	<b>104.31</b>	<b>5.07%</b>
<b>Ferrous</b>	softdrink	154.06	47.52	76.4%	20.03	26.21	1.27%
	other beverage	40.24	4.02	90.9%	5.23	5.75	0.28%
	food	230.1	77.06	74.9%	29.91	39.93	1.94%
	non-food	19.2	16.06	54.5%	2.50	4.58	0.22%
	<b>subtotal</b>	<b>443.6</b>	<b>144.66</b>	<b>75.4%</b>	<b>57.67</b>	<b>76.47</b>	<b>3.72%</b>
<b>Aluminum</b>	softdrink	22.25	15.41	59.1%	2.89	4.90	0.24%
	other beverage (dep.)	7.53	5.89	56.1%	0.98	1.74	0.08%
	other beverage (non-dep.)	16.76	2.59	86.6%	2.18	2.52	0.12%
	<b>subtotal</b>	<b>46.54</b>	<b>23.89</b>	<b>66.1%</b>	<b>6.05</b>	<b>9.16</b>	<b>0.44%</b>
<b>PET</b>	softdrink	55.32	13.9	79.9%	7.19	9.00	0.44%
	other beverage (LCBO)	0.97	2.59	27.2%	0.13	0.46	0.02%
	other beverage	3.38	2.83	54.4%	0.44	0.81	0.04%
	<b>subtotal</b>	<b>59.67</b>	<b>19.32</b>	<b>75.5%</b>	<b>7.76</b>	<b>10.27</b>	<b>0.50%</b>
<b>HDPE</b>	food or beverage	14.8	30.09	33.0%	1.92	5.84	0.28%
	other	33.95	80.84	29.6%	4.41	14.92	0.73%
	<b>subtotal</b>	<b>48.75</b>	<b>110.93</b>	<b>30.5%</b>	<b>6.34</b>	<b>20.76</b>	<b>1.01%</b>
<b>PVC</b>	food or beverage	2.39	2.69	47.0%	0.31	0.66	0.03%
	other	5.5	4.82	53.3%	0.72	1.34	0.07%
	<b>subtotal</b>	<b>7.89</b>	<b>7.51</b>	<b>51.2%</b>	<b>1.03</b>	<b>2.00</b>	<b>0.10%</b>
<b>Tubs</b>	food	13.46	27.66	32.7%	1.75	5.35	0.26%
	other	4.19	9.84	29.9%	0.54	1.82	0.09%
	<b>subtotal</b>	<b>17.65</b>	<b>37.5</b>	<b>32.0%</b>	<b>2.29</b>	<b>7.17</b>	<b>0.35%</b>
<b>Polycoat</b>	dairy	12.57	44.77	21.9%	1.63	7.45	0.36%
	other food	0.87	0.91	48.9%	0.11	0.23	0.01%
	other	0	0.33	0.0%	0.00	0.04	0.00%
	<b>subtotal</b>	<b>13.44</b>	<b>46.01</b>	<b>22.6%</b>	<b>1.75</b>	<b>7.73</b>	<b>0.38%</b>
<b>Boxboard</b>	food	125.83	174.87	41.8%	16.36	39.09	1.90%
	other	80.7	195.22	29.2%	10.49	35.87	1.74%
	<b>subtotal</b>	<b>206.53</b>	<b>370.09</b>	<b>35.8%</b>	<b>26.85</b>	<b>74.96</b>	<b>3.64%</b>
<b>Wet strength</b>		<b>3.2</b>	<b>18.83</b>	<b>14.5%</b>	<b>0.42</b>	<b>2.86</b>	<b>0.14%</b>
<b>OCC</b>		<b>307.57</b>	<b>167.91</b>	<b>64.7%</b>	<b>39.98</b>	<b>61.81</b>	<b>3.00%</b>
<b>Totals</b>		<b>2539.7</b>	<b>1538.1</b>	<b>62.3%</b>	<b>330.16</b>	<b>530.11</b>	<b>25.76%</b>
total hhld waste lbs/hhld/yr		2057.81		16.04% recycled			

## QRR Waste Comp: Other Materials

50 hhlds for 8 weeks

Other Material		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Total	lbs/	% by wt
		lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	hhld/yr	of total
Yard waste		692.5	210.5	271.5	143	270.7	464.9	313.2	235.9	2602	338.27	16.44%
Food waste		547	520	498	551.5	476	414.6	604.7	524	4135.8	537.65	26.13%
Diapers, tissues, & other sanitary		145	200	187	202	186	205	190.5	139.5	1455	189.15	9.19%
Metals	aluminum	1.75	4	2.32	1.39	1.12	1.15	7.15	0.82	19.7	2.56	0.12%
	other	7	18.7	18.85	7.03	3.98	8.31	31.3	12.12	107.29	13.95	0.68%
Ceramics, pottery, & other		16	7.5	9.22	11.77	46.33	11.65	15.15	13.61	131.23	17.06	0.83%
Building & renovation		35	48.5	74.51	15.26	167.8	74.37	218.5	75.11	709.02	92.17	4.48%
HHW, Pharm. & cosmetics		7.05	12.5	16.6	9.7	8.81	11.61	10.65	9.99	86.91	11.30	0.55%
Small appliances & fixtures		18.75	12.3	26.45	7.52	8.51	10.76	25.09	25.44	134.82	17.53	0.85%
Paper	mixed grade	18	42	42.9	34	33	26	34	34	263.9	34.31	1.67%
	kraft	13.7	12.43	12.47	8	7.39	4.62	8	13	79.61	10.35	0.50%
	waxed	1	1.58	3.25	2.79	2.12	1.96	2.05	2.02	16.77	2.18	0.11%
	magazines & other glos	18.3	30.9	30.1	32	30.26	11.43	24.15	37.15	214.29	27.86	1.35%
	composite packaging	5.9	11.59	9.11	13.25	7.25	13	9.5	9	78.6	10.22	0.50%
	telephone books	13	1.3	0	6.65	5.56	1.32	1.17	10.21	39.21	5.10	0.25%
	other	9.7	10.32	2.68	3.38	1.41	5.52	0.88	1.41	35.3	4.59	0.22%
	subtotal	79.6	110.1	100.5	100.1	86.99	63.85	79.75	106.8	727.68	94.60	4.60%
Clothing & footwear		25.75	127.6	110.7	73	110.3	63	84.65	65	660	85.80	4.17%
Plastic	unrecyclable rigid	1.5	3.49	3.97	5	2.51	2.94	6.29	6	31.7	4.12	0.20%
	film	71	65.5	56	56	52.17	48	50	42.5	441.17	57.35	2.79%
	foam packaging	2.3	1	7.93	0.1	0.82	0.13	1.5	0.12	13.9	1.81	0.09%
	other foam	3.6	3.08	4.01	3	3.03	4.27	3.43	3.46	27.88	3.62	0.18%
	pails & drums	0	0	0	2.05	0	0	0	0	2.05	0.27	0.01%
	ovenable trays	2.5	0.6	0	0.07	0.64	1.26	0.2	0.46	5.73	0.74	0.04%
	other	3.6	0.16	4.62	4.84	2	0.52	0.93	6.36	23.03	2.99	0.15%
	subtotal	84.5	73.83	76.53	71.06	61.17	57.12	62.35	58.9	545.46	70.91	3.45%
Treasures	(total)	55	85.48	44.97	92.65	15.39	31.03	47.05	65.01	436.58	56.76	2.76%
	kitty litter	26.5										
	toys		30.63	12.42	10	8.87	10.05	20.19		92.16	11.98	
	vacuum fuzz	7.5	1.5	18.74	5.11	2.66	10.44			45.95	5.97	
total other non-organic		475.4	700.5	667.7	591.4	696.4	537.9	772.1	572.3	5013.7	651.78	31.67%
total organic		1240	730.5	769.5	694.5	746.7	879.5	917.8	759.9	6737.8	875.91	42.57%
total recyclables										4077.8	530.11	25.76%
TOTAL										15829	2057.81	100%



## Apartment Trials

### Box-Bag Survey

The residents of an 89 unit apartment building were each given a Blue Box (8-gallon apartment size) and a Blue Bag. After three months they were questioned as to their preferences. Out of 45 responses:

- 47% preferred the Blue Box (21/45)
- 33% preferred the Blue Bag (15/45)
- 11% preferred both Box and Bag (5/45)
- 8% had no preference (4/45)

#### *Blue Box Pros:*

- better for cans and plastic
- more storage room
- easy to wash
- rigid container easier to use and stands up better to wear

#### *Blue Box Cons:*

- takes up too much room in the apartment
- heavy and awkward to carry to the depot
- no handles

#### *Blue Bag Pros:*

- takes up little room in the apartment
- easier to carry to depot (lighter)
- used for papers and boxboard

#### *Blue Bag Cons:*

- hard to keep clean
- lack of storage space (more trips to the depot)
- can get lost
- inconvenient to open and add materials

Based on the results of this survey, subsequent apartments were provided with a Blue Box.

## Apartment Pilots

Three apartment trials were conducted to determine the feasibility of apartment recycling.

### **highrise (60 units, 8 floors)**

The building superintendent collected material from outside each unit. He designated floors for each day, ie. Monday – floors 7 & 8, Tuesday – floors 5 & 6, and so on. Each resident put material outside their door in a small apartment-sized blue box. The superintendent transferred the material into over-sized blue boxes on a rolling cart. He set out weekly at the curbside as follows:

- 1 95 gal. news
- 1 95 gal. cans/plastic
- 1 95 gal. boxboard
- 3-4 boxes clear glass (over-sized blue boxes)
- 3-4 boxes coloured glass (over-sized blue boxes)

The super reported 100% participation and waste reduction of at least 50% by volume. Driver time for loading was 10 – 15 minutes a week and no contamination problems were experienced.

**lowrise: 66 unit, 3-bedroom townhouses**

There were two parking lots for this development, each with its own depot. Tenants collected material in a regularly-sized Blue Box, and brought their material to the back of the building for weekly collection. Each depot consisted of:

- 1 95 gal. clear glass
- 1 95 gal. coloured glass
- 1 95 gal. cans/plastic
- 1 95 gal. newspaper
- 1 wood box with lid, ~ 30" d x 48" h x 72" l. This box was for boxboard & OCC.

Occasionally there was an overflow of materials, which were placed in a bag beside the appropriate container. Driver time for loading was 15 minutes per side (30 minute total) each week. There was some contamination, typical of blue box set-outs.

**highrise (89 units, 11 floors)**

In this building, all tenants were given both an apartment-sized blue box and a blue bag. The depot was located in an underground parking area. Each resident was responsible for bringing materials to the bins for a weekly collection. The depot was set up as follows:

- 2 95 gal. news
- 1 95 gal. cans/plastic
- 2 95 gal. boxboard
- — boxes clear glass (over-sized blue boxes)
- — boxes coloured glass (over-sized blue boxes)
- OCC was placed on a rolling cart, tied and set out beside the 95-gallon containers.

A second trial was conducted using purpose-built bins in addition to roll-out carts. The bins measured approximately 10' x 3' x 3' and were all-steel construction. They had spring-loaded tops for ease of operation.

The bin had 3 compartments, a large compartment for OCC, and two other compartments — one for boxboard and one for glass. The glass compartment held 4 large (15 gallon) Blue Boxes, marked for clear or coloured glass.

The material was hand-loaded into the recycling trucks once per week.

These bins proved successful and were installed at all apartment depots.

**Conclusions**

Apartment recycling with the new materials proved successful. There was a great demand for recycling from the residents, and this combined with support from the manager/superintendent, was critical to the success of the program.

A flyer, specific to each building, was distributed to each unit with the "Ins & Outs" card and Blue Box. The flyer welcomed the residences to the program and specified where the material was to be dropped off.

## Public Relations: Promotion and Education

The success of a recycling program hinges on the careful involvement of the residents. To reach residents, an ongoing public relations program, focussing on education, is needed. Specifically, public relations is important to ...

- ... *launch the program*. Through public relations, residents are informed of the intricacies of the program -- who, what, when, where, why and how. Public relations is also useful in generating enthusiasm for recycling and stressing the importance of reducing waste through recycling.
- ... *reinforce the program throughout the year*. Ongoing public relations activities, such as progress reports (i.e. the amount of material being diverted from landfill sites) and reminders of program details, are essential to a successful recycling program. Not only does feedback from coordinators tell residents their efforts are significant and appreciated, it reinforces the message, it may result in residents recycling more efficiently, and it encourages non-recyclers to join in.
- ... *evaluate a program*. A feedback mechanism (e.g. survey) should be implemented to give residents an opportunity to voice their concerns and comments, to track the program and to make suggestions as to how it can be improved.

## "Blue Box Plus!" Launch

### Communication tools

- **householders' information card** - provided detailed information on recyclable materials and how to prepare them. It was delivered with each of the 32,000 Blue Boxes.
- **stickers** - reminded residents of what can and cannot be recycled by listing materials. It was affixed to the inside wall of each Blue Box.
- **newspaper advertising** - reinforced what materials should be recycled and how to prepare them. The ad appeared three times from September 10, 17 and 24 (the program was launched September 24) in the following community newspapers:
  - Belleville Intelligencer
  - Community Press
  - Madoc Review
  - Marmora Herald
  - The Trentonian
  - Tweed News
  - Stirling News-Argus
  - The Quinte Weekly News
- **television advertising** - reinforced information as to what materials could be recycled and how to prepare them. The 30-second instructional ad appeared during the weeks of September 10 and 17 on the Kingston station, CKWS.
- **radio advertising** - reminded residents to recycle. A series of two ads aired on the local stations, CJBQ, CJTN and CIGL during the weeks of September 10 and 17. Several public service announcements were also aired in September.

- **launch event (Sept. 22)** - celebrated the program and generated enthusiasm about recycling. Residents living in the participating communities were invited to the event through public service radio announcements and small newspaper ads. Local media were faxed a simple one-page invitation, and representatives from sponsors and local MPPs and MPs received more formal invitations that included a map showing directions to the venue. The ceremony, which was held at the processing centre in Trenton, began with speeches from the organizers and government representatives, and was followed by light refreshments and tours of the processing plant. Special exhibits, including displays explaining sponsorship, were set up. Photo opportunities were scheduled after the ceremony, before the tours.
- **news releases** - provided background information about the program. News releases, sent to local media, announced the program's funding from OMMRI, the Ministry of the Environment and Centre and South Hastings; and discussed the launch day ceremonies.
- **30-minute instructional video** - reinforced what materials should be recycled and how to prepare them. The video was made in cooperation with the local cable company and aired several times during a one-month period.
- **interviews** - designated spokespeople provided information about the program and answered questions. The recycling coordinator and OMMRI representatives appeared on a local open-line radio show and responded to many interview requests from other media.
- **media kits** - provided media with detailed information about the program. Kits were distributed to reporters at the event.

## Results

Phase one of the collection monitoring study (December 6, 1990 - January 24, 1991) indicated a more than 86 per cent participation rate, and of all the Blue Boxes set out, only 28 per cent contained some form of contamination. Although the communication campaign cannot claim sole responsibility for the positive results, it did play a major part.

In fact, results from a survey conducted three months into the recycling program, described in more detail later in the report, showed that two-thirds of the survey participants indicated they had no further information needs, "everything had been well-explained." The information card had been retained by a majority of residents and was being used for reference by three-quarters of the respondents.

Survey participants ranked the information card first in its usefulness to them. The newspaper ads, ranking second, served as an important reminder and reinforcement to the information card. These two items were also the ones most frequently recalled by respondents.



## Ongoing promotion activities

- **hotline (telephone)** - gave residents the opportunity to have their questions answered immediately.
- **problem card** - explained a recycling error and noted the correct procedure and rationale (examples of errors: Blue Box was set out when only half full; non-recyclable materials had been included in the Blue Box; cans were bagged rather than loose). The contractor/collector left the card in the Blue Box.
- **newsletter** - reported on the program's progress, reiterated what materials could be recycled, encouraged residents to deepen the capture rate, briefly discussed what happens to recyclable materials once they leave the curbside, and outlined the Ontario government's plan for waste reduction. A newsletter was distributed, through direct mail, to every household.
- **news releases** - reported on the results issued in interim reports. They were sent to key media across Ontario.
- **drivers** - the truck drivers provided an excellent feedback system to the householders. This was both indirect — by leaving unacceptable materials in the box with a Problem Card — and direct in conversation with many of the residents. A good deal of positive response was received on the courtesy of the drivers in responding to questions and problems.

## Results

After the publication of a newsletter, mentioned above, the capture rate of recyclable materials increased significantly. The newsletter was distributed in the middle of the 8-week Waste Composition Study. The capture rate of recyclable materials increased by almost 12 per cent after the newsletter (66% vs 59% capture rate).

At the end of the second phase of monitoring (April/May, 1991) the participation rate was 89.6%, and contamination was reduced from 28% to 22%.

## Specific project promotions

### *Mixed household paper trial*

- In addition to the regular recyclable materials, Frankford residents were asked to recycle all household paper (e.g. letters and envelopes, sales flyers, writing paper, paper bags, wrapping paper, magazines) by stuffing all but the magazines in a boxboard box along with the boxboard material. Magazines were bundled with newspapers. Communication tools included a flyer explaining why the project was being done and how householders could participate. It was delivered to each household. In addition, news releases announcing the special project, were sent to local media. Mid-way through the program a reminder-flyer was distributed.

### *Corrugated cardboard (OCC) trial*

- Residents of the Village of Tweed were asked to take part in a project which tested the efficiency of OCC collection. Specifically, they were asked to put their OCC out once a

month, instead of the regular weekly collection. Communication tools included a flyer, door hanger and news release. (This trial found that weekly collection of OCC, with the other recyclable materials, is more efficient than a separate monthly collection.) At the end of the test program a flyer was delivered to each household thanking residents for their assistance and asking them to resume to weekly collection.

## Feedback

### Survey 1 (conducted in month three of the program)

- To determine the impact of the communication tools, success of the program up to that time, and how it could be improved, a telephone survey was conducted among a randomly selected sample of 100 Blue Box owners in the Centre & South Hastings program area. Questions focussed on the following:
  - rate of participation
  - types of materials householders recycle
  - program's impact on the community
  - residents' awareness of the program's unique nature
  - effectiveness of education material
  - impact of advertising and promotional activities
  - residents' motivation to take further waste reduction steps.

### *Survey findings*

- Blue Box owners in Centre and South Hastings are enthusiastic recyclers. A total of 97 per cent of study participants said the Blue Box was used for recycling in their households. As well, they seemed to be confident that they were recycling correctly. None of the users indicated or were willing to admit they had any strong doubts about what they were doing.

Almost all respondents also indicated that they believed their recycling program was "very helpful" or "somewhat helpful" in addressing the solid waste problem in their community -- the number one local issue for just more than 40 per cent of the study's participants.

Two thirds of all respondents put their Blue Box out for collection every week. Another 26 per cent put the box out bi-weekly. Less than 10 per cent put the box out less frequently.

At least half of the Blue Box users claimed to recycle newspapers, glass bottles and jars, food and beverage cans and plastic containers. Cardboard and boxboard were recycled less often. This may have resulted from less of this type of packaging in households, or may have indicated some confusion on whether items made from these materials can be recycled.

Only about one in ten Blue Box users indicated they had experienced problems in using their box.

- Centre and South Hastings residents appeared eager to take additional waste reduction steps.

In response to a question on the measures they take to reduce waste, 22 per cent indicated they were composting, 19 per cent of Blue Box owners were buying goods with less packaging and/or avoiding non-recyclable packages, and 12 per cent of respondents were stockpiling and reusing plastic bags.

As well, three-quarters of the respondents indicated their willingness to take hazardous materials, such as paints and used motor oil to a hazardous waste depot. Nearly two-thirds were willing to begin composting.

- As described earlier in the report, the Blue Box Plus program was launched with an extensive and effective communication campaign. Results from the survey showed that two-thirds of the study participants indicated they had no further information needs, "everything was well-explained." The information card had been retained and was being used for reference by three-quarters of the respondents.

Survey participants ranked the information card as first in its usefulness to them. The newspaper ads, ranking second, served as an important reminder and reinforcement to the information card. These two items were also the ones most frequently recalled by respondents.

Approximately one-third of the survey participants felt they needed additional information. Their requests fell into two categories: details on what materials could and could not be recycled; and details on the progress of the program. (The newsletter was published after the survey.)

- Two-thirds of the study participants indicated that the program needed no further improvement. The remaining third offered a variety of suggestions. The most common was that the program should have accepted more materials for recycling. Next was the suggestion that there should have been more reminders about what could go into the Blue Box.

### **Special notes**

- As a result of the success of the Centre and South Hastings information card and newspaper ads, the same design formats were used for other municipalities launching Blue Box programs.
- It may have been noted that special activities were not implemented to mark the completion of "Blue Box Plus," a one-year program. That's because the concept of "Blue Box Plus" will be continued through a more extensive program, "Blue Box 2000." To avoid confusing residents, i.e. promoting the end of one program, only to announce the beginning of a new one, no final public relations activities were implemented.

## Operating Costs

It is a difficult but necessary task to extract accurate costs of running a recycling program. There are many variables to consider, with an important one being the contract arrangements for collection, processing, and marketing. Identifying costs for specific materials is next to impossible. Rather, some of the implications of running the Blue Box Plus! program have been identified with all materials blended.

Presented below is a summary of the fixed (capital) costs of the program. This is followed by an analysis examining the costs in terms of resource requirements of labour for collection and processing.

## Fixed Resources

### Collection Equipment

ITEM	NUMBER	UNIT COST	SUB-TOTAL
trucks	8	\$82,000	\$656,000
Blue Boxes	37,000	\$3.90	\$144,300
truck scale	1	\$53,000	\$53,000
posters	34,000	\$0.15	\$5,100
depot set up	3	\$3,000	\$9,000
<i>sub-total</i>			<i>\$867,400</i>

### Processing Equipment

ITEM	NUMBER	UNIT COST	SUB-TOTAL
land & building	1	\$807,000	\$807,000
baler	1	\$193,000	\$193,000
conveyor	1	\$15,000	\$15,000
skid-steer	2	\$26,500	\$53,000
lift truck	1	\$20,600	\$20,600
bins	5	\$500	\$2,500
tables	4	\$800	\$3,200
miscellaneous	—	—	\$11,000
<i>sub-total</i>			<i>\$1,105,300</i>

**Total Fixed Costs** **\$1,972,700**

These costs (other than the land and building which are carried by a 20-year mortgage) are paid out by the municipalities in the first year. A Capital Reserve fund was established to cover new capital costs as equipment has to be replaced. This fund is set at 5% of total operating costs.



## Time Requirements

The following is an examination of some of the operating parameters of the Blue Box Plus! program, specifically the time requirements for collecting and processing material. These figures are based on time allocations, with no allowance for "hard" costs such as fuel, insurance, and maintenance. It does, however, deal with the largest single component — labour. Each program will have fixed and variable costs unique to that program. The collection and processing times will also vary considerably depending on the size of the program, the collection system (number of curbside sorts), and sorting requirements.

### Collection Time

The collection time for the Blue Box Plus! households in Centre & South Hastings (curbside) were analysed over a sample 3 month period — April, May, and June of 1991. Time is based on the 7 to 8 drivers.

Average number of curbside pick-ups per month:	72,013 pick-ups per month
Average hours per truck per day:	10.5 hours
Tons collected per truck per day:	3.01 tons
<b>Hours per ton for collection:</b>	<b>3.48 hours</b>

### Processing Time

The processing time was analysed over the same sample 3 month period — April, May, and June of 1991. Because this included other municipalities (with conventional Blue Box materials) plus ICI materials, the processing time was extracted for the Blue Box Plus! materials (Centre & South Hastings curbside). Total processing staff was 7 to 8 people.

Average monthly tons processed (total by facility):	711 tons
Average monthly tons processed (C&S Hastings curbside):	462 tons
Average monthly production hours (total by facility):	1626 hours
Average monthly production (C&S Hastings curbside):	1270 hours
Average hours per ton for processing (all materials):	2.29 hours
Estimated time for sorting conventional Blue Box materials:	1.75 hours
<b>Average hours/ton (C&amp;S Hastings materials):</b>	<b>2.75 hours</b>

### Administration

In addition to the above time for collection and processing, there were administrative requirements provided by 3 people. These include:

Average monthly time for clerical (Hotline, weight-scale, etc.):	181 hours
Average monthly time for management (scheduling, admin., etc.):	235 hours
Average time for municipal staff (Recycling Co-ordination):	143 hours
Total average monthly administrative time:	559 hours
Total average monthly administrative time/ton (total):	1.27 hours
<b>Total average monthly administrative time/ton (C&amp;S Hastings):</b>	<b>0.83 hours</b>

## Program Costs

Actual costs for the Blue Box Plus! program are difficult to isolate because 37% of material handled during the 4-month period charted below came from ICI and other municipalities. The following costs, based on actual contact and expenses, represents a best estimate at allocating costs between the Blue Box Plus! curbside program and other aspects, including material from the ICI sector and other municipalities.

Monthly Average	
Operating costs for Blue Box Plus! portion	\$82,453
Tons from Blue Box Plus!	459
Tons from other sources (municipal & ICI)	272
% Tons Blue Box Plus!	63%
Total Revenue	\$26,443
Revenue portioned to Blue Box Plus!	\$16,532
Net Cost to B-B Plus! (cost - revenue)	\$65,921
No. of Hhlds in Hastings (curbside equiv.)	31,000
<b>\$/ton (before revenue)</b>	<b>\$180</b>
<b>\$/ton (after revenue)</b>	<b>\$144</b>
<b>\$/hhld/yr (after revenue)</b>	<b>\$25.50</b>

The above chart presents average monthly costing data based on a 4 month period in the middle of the demonstration (Apr. – Jul. 1991). The "Operating costs for Blue Box Plus! Portion" is based on actual costs for the collection, processing, and marketing of curbside materials within Centre & South Hastings. In this time period, 63% (459 tons) of the total material processed was from the Blue Box Plus! program. For the purposes of this costing, the average revenue of \$26,443 is proportioned at the same ratio. This leaves a net cost for the Blue Box Plus! of \$65,921 a month.

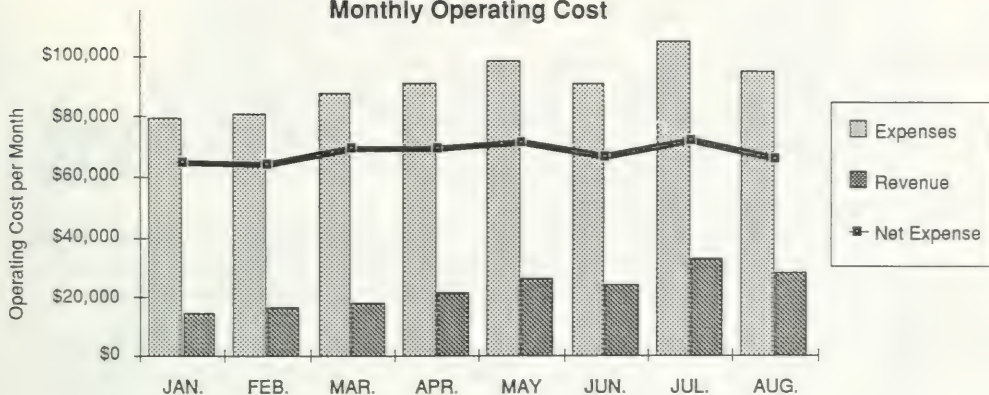
This cost includes a maintenance reserve fund but does not include any municipal costs of capital or administration. Each municipality deals with capital budgets in a different way, while administration costs are hard to apportion to the Blue Box Plus! component of the waste diversion activities. It is estimated that administration would add \$5 – \$10 per ton to the costs. The base-line operating costs are \$144 per ton (after revenue) or \$25.52 per household. Revenue for new materials was based on \$0/ton for boxboard, \$30/ton for OCC, and an average of \$145/ton for rigid plastic (primarily HDPE).

### Total program costs

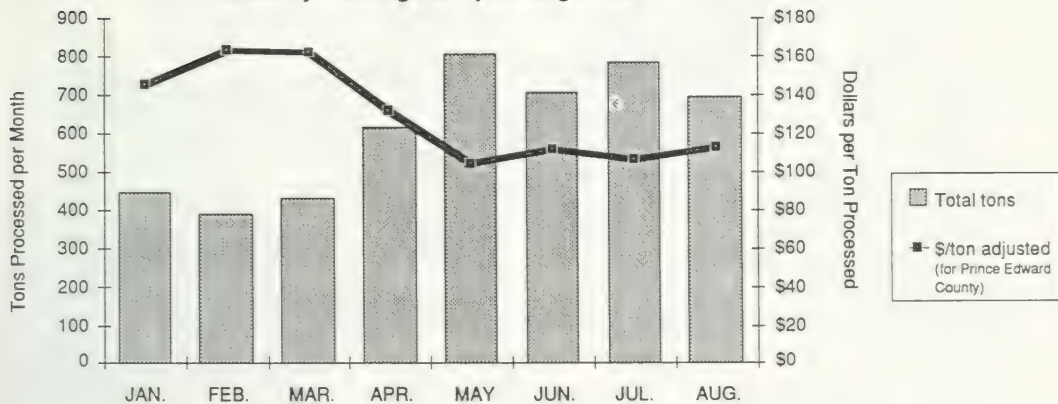
Actual costs for the entire program were significantly less. This is because the other municipalities involved, plus the ICI material brought to the facility, all reduced costs for the entire program. The next page presents 8 months of data for the full operation, including processing materials from other municipalities and the ICI sector. It shows that as total operating costs increase (contract + municipal costs, but no capital costs), so does revenue, with the net effect being a fairly stable net expense. Note the jump in tonnage in April when Prince Edward County joined. Costs have been adjusted to account for their collection costs. The ICI sector started dropping off more material at a zero tipping fee.

A stable net expense with increased use of the facility means that the costs per ton and cost per household both decline. This reinforces the concept that as the facility is used more, the cost per unit declines. An aggressive attitude to recycling — bringing on more materials, involving more sectors (ICI and apartments), and involving more municipalities — pays dividends.

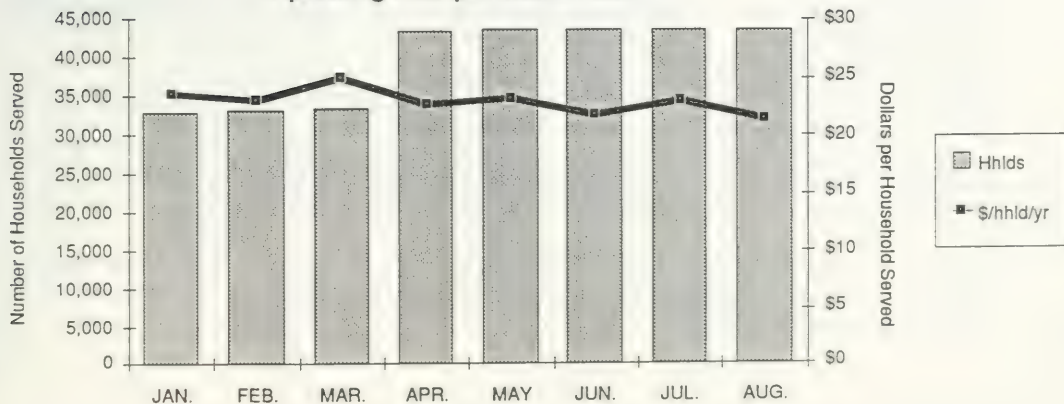
## Monthly Operating Cost



## Monthly Tonnage &amp; Operating Cost



## Operating Cost per Household





## Blue Box 2000

The success of the Blue Box Plus! program can in part be measured by how the Waste Management Board responded to the completion of the demonstration year. Not only did the Board decide to maintain the collection of the new materials, they have undertaken an aggressive expansion and developed the Blue Box 2000 program. An important aspect of Blue Box 2000 is the addition of new materials: film plastic (LDPE), rigid and foam polystyrene (PS), magazines and catalogues, mixed household paper, aluminum trays and foil, and textiles.

The goal of the Blue Box 2000 Program is to meet or exceed the provincial guidelines of 50% reduction in the residential waste stream by expanding the Blue Box Plus! program, start a local Waste Reduction Office, and implement an aggressive backyard composting program. The Ontario Ministry of Environment has approved a one-year demonstration grant to cover incremental capital and operating costs.

### Diversion Goals

The expanded and deepened Blue Box should divert about 30% of the household stream.

A backyard composting program could divert a further 21%, while the local reduction goal is 3%.

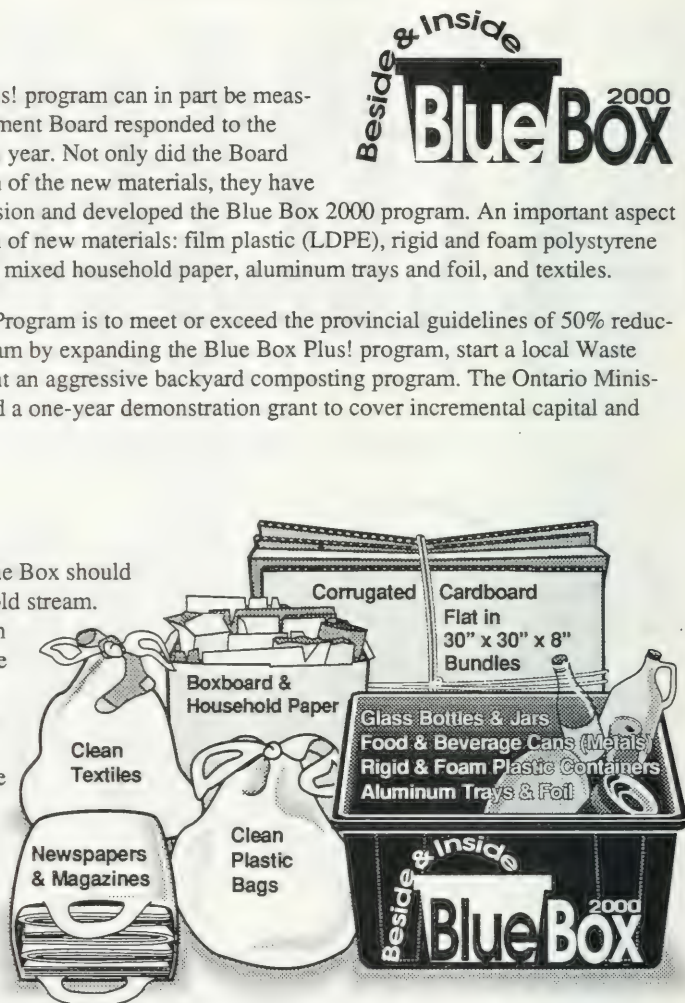
This combination of approaches would achieve a total of 54% diversion of the residential waste stream.

There are 3 approaches to expanding the Blue Box Plus! program:

- ◇ Increase the participation by bringing on apartments, non-participating households, as well as the ICI sector.
- ◇ Deepen the capture rate of currently-collected materials, through education and legislation.
- ◇ Broaden the types of materials that can be included in the Blue Box.

The Blue Box Plus! Waste Composition Study showed that these Blue Box materials plus compostables (kitchen and yard waste) represent 78% of the household waste stream.

Blue Box 2000 started November 18th, 1991 with the inclusion of the new materials. Other aspects of the program will be phased in over the year. Regular reports on the progress of Blue Box 2000 will be prepared and distributed.





# BLUE BOX INS&OUTS

## 1. RIGID PLASTIC CONTAINERS

Remove and discard tops and rinse containers of soft drinks, detergents, juice, water, bleach, shampoo, yogurt, ice cream and other foods. Include but do not rinse or remove tops of oil and anti-freeze containers. DO NOT INCLUDE foam or film plastics, drink boxes, pill boxes, plastic tops or other plastic products

## 2. GLASS BOTTLES & JARS

Remove metal caps and lids for recycling and rinse containers. It is not necessary to remove labels. DO NOT INCLUDE other types of glass, ceramics, dishes, cups, window glass, light bulbs, mirrors

## 3. FOOD & BEVERAGE CANS

Rinse cans. Place loose lids and tops in bottom of cans & pinch the top to trap lids "inside". It is not necessary to remove labels or flatten cans. DO NOT INCLUDE aerosol or paint cans, aluminum foil or plates, frozen juice cans (unless of metal), metal pots or other metal products

## 4. NEWSPAPERS & INSERTS

Place newspaper and inserts in plastic or paper bag next to or on top of your Blue Box. DO NOT INCLUDE magazines, catalogues, books or bond paper. Keep corrugated and boxboard separate from newspapers

## 5. CORRUGATED CARDBOARD

Flatten and bundle 30" x 30" parcels up to 8" thick. This type of cardboard, used for shipping stereos and large appliances, has tiny corrugations in the middle section. Place bundles beside Blue Box. DO NOT INCLUDE waxed or coated boards, food-soiled pizza boxes or any non-corrugated cardboard

## 6. BOXBOARD BOXES

Flatten and bag cereal, detergent, shoe boxes and other boxboard packages including rinsed milk cartons. Place in a bag beside or on top of your Blue Box. DO NOT INCLUDE paper or plastic liners, trays, paper towel rolls, egg cartons, drinking boxes

## RECYCLING REMINDERS

**CURBSIDE PICKUP** Put your full Blue Box at the curb before 7:30 a.m. on the same day as your regular municipal garbage pick-up. Please check your local newspaper for any announcement of changes

**RURAL PICK-UP** If you have rural municipal pick-up as in Sidney, Thurlow and Huntingdon Townships, place your full box on the same side of the road as your mail delivery on your regular municipal garbage day.

**LANDFILL DEPOTS** Tyendinaga, Hungerford, Madoc and Rawdon landfill sites have a recycling depot with separate bins for different materials. It is important to put the correct recyclable material in the correct bins

**HOLIDAYS** There will be no collection on Statutory Holidays. If the holiday falls on your regular collection day put your Blue Box out on your regular collection day the following week

**IDENTIFY** Write your address on the white rectangle on the end of your Blue Box. The Blue Box is the property of the municipality and should remain with the house if you move

**CALL** The success of our Blue Box program depends on your careful participation. If you have questions or doubts about anything call the Recycling Hotline 392-2121

Please put your box out only when full.

Poster  
2-colour  
7½" x 15"

This program funded by



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OMMRI

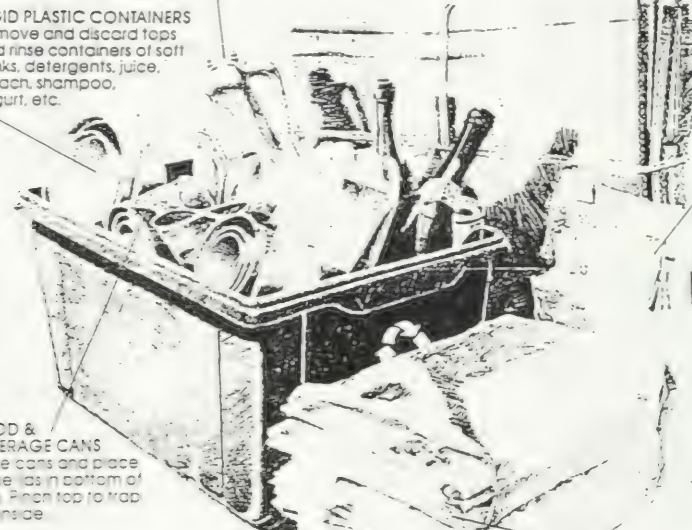
Quinte  
Regional  
Recycling

Centre & South Hastings  
Waste Management Board

Corporations in Support of Recycling

STARTING SEPT. 24

# BLUE BOX PLUS!

- 
- 1. GLASS BOTTLES & JARS**  
Remove caps and lids for recycling and rinse containers.
  - 2. RIGID PLASTIC CONTAINERS**  
Remove and discard tops and rinse containers of soft drinks, detergents, juice, bleach, shampoo, yogurt, etc.
  - 3. FOOD & BEVERAGE CANS**  
Rinse cans and place loose lids in bottom of can. Rinse top to flap inside.
  - 4. CORRUGATED CARDBOARD**  
Flatten and tie into 30" x 30" parcels up to 8" thick and place beside Blue Box.
  - 5. BOXBOARD BOXES**  
Flatten and bag cereal, detergent shoe boxes and rinsed milk cartons. Remove any inserts. Place beside your Blue Box.
  - 6. NEWSPAPERS & INSERTS**  
Place in plastic or paper bag next to your Blue Box.

The most comprehensive recycling program in Ontario is getting its start in Centre & South Hastings... and its success depends on you!

"Blue Box" recycling has become a part of over 2 million households in Ontario and now it's your turn to participate in an even bigger, more ambitious program: Blue Box Plus!

In addition to newspapers, glass bottles and jars, plastic soft drink bottles and cans, you will be able to recycle corrugated cardboard, boxboard and rigid plastic containers. This will further reduce the waste

that goes into landfills, help preserve our natural resources and contribute to a cleaner, healthier environment.

Check the flyer that comes with your Blue Box for details on curbside pick-up, rural pick-up and recycling bins at landfill sites. For more information call the Recycling Hotline—392-2121.

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Regional  
Recycling

Centre & South Hastings  
Waste Management Board

Newspaper  
Ads  
Actual Size  
~8" x 14"

# BLUE BOX INS & OUTS

## Recycle these items

### Newspapers and Inserts

Place in paper or plastic grocery bag

### Glass Bottles and Jars

Rinse and place metal tops in tin can

### Plastic Containers

Rinse food containers and remove tops

### Food and Beverage Cans

Rinse and place loose lids in tin can

### Corrugated Cardboard

Flatten and tie in 30" x 30" x 8" bundles

### Boxboard

Flatten and place in paper or plastic bag

## Do not include these

MAGAZINES, CATALOGUES

DISHES, LIGHTBULBS, MIRRORS

FOAM PLASTICS, PLASTIC WRAP

AEROSOL CANS, PAINT CANS

WAXED OR COATED BOXES

PAPER OR PLASTIC LINERS

For more information call  
Recycling Hotline 392-2121



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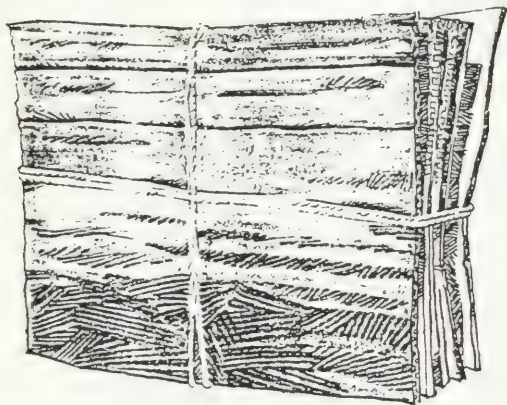
Sticker placed inside Blue Box



# RESIDENTS OF TWEED

## Our Recycling Program needs your help!

Thanks to you our Blue Box Plus program has gotten off to a great start.



You can help by participating in a special trial collection of corrugated cardboard.

As part of the Blue Box Plus recycling program in Centre and South Hastings, a number of special trial collections will be conducted over the next year. This one will test picking up corrugated cardboard on a once-per-month basis with a separate truck.

Door Hanger - 2 sides

You can help by following a few simple steps:

## Please:

- ☐ put your corrugated cardboard out only on the first Friday of each month; corrugated cardboard is the type of cardboard with a wavy middle section that is used in boxes for shipping such items as appliances and stereos;
- ☐ flatten the cardboard before setting it out;
- ☐ continue to put your other recyclables—glass bottles and jars, food and beverage cans, rigid plastic containers, newspapers and inserts, along with bags of flattened boxboard—out on your usual recycling day, whenever your Blue Box is full;
- ☐ put your Box at the curb only when full;
- ☐ call the **Recycling Hotline** (collect) at **392-2121** with any questions.

## Please Note:

- ☐ the next collection of corrugated cardboard will be December 7, 1990;
- ☐ corrugated cardboard won't be picked up on any day other than the first Friday of each month;
- ☐ this project is being conducted only in the Village of Tweed.

The success of your recycling program depends on you!

Blue Box Plus funded by:



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Waste Management Board

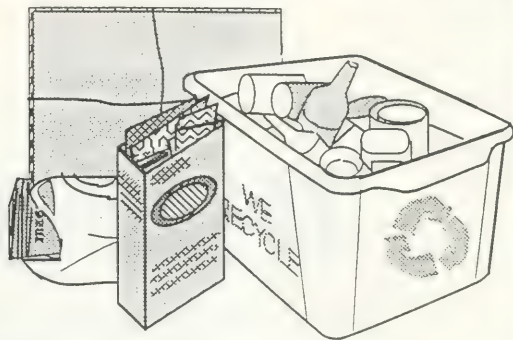
Corporations in Support of Recycling

\*Daily and weekly newspapers, publishers and printers and their suppliers \*Grocery distributors \*Manufacture and suppliers of grocery and related products \*Manufacturers, bottlers and distributors of soft drinks and the



# Residents of Frankford...

## Now you can add household paper to your Blue Box!



**Quinte Regional Recycling**, along with the Ontario Ministry of the Environment and OMMRI: Corporations In Support of Recycling, is working to improve our Blue Box Plus recycling program. We are starting a first-of-its-kind pilot project to recycle mixed papers with the cooperation of Blue Box users in the Village of Frankford, only.

Participating is simple: all you have to do is save your household papers for recycling along with the items you usually put out in your Blue Box. Mixed papers include everything but old corrugated cardboard and newspapers which are collected separately, and books and soiled paper.

Household paper *must* be put out for collection with your bagged or boxed boxboard. The best method is to stuff your boxboard and mixed household paper into another boxboard box, such as a soap or cereal box, and then place it beside your full Blue Box on your weekly collection day. ***Sorry, but we can't pick up loose paper or boxboard in your Blue Box.***

### Include with your boxboard:

- letters and envelopes
- sales flyers and junk mail
- writing paper
- cash register tapes
- paper bags, paper rolls
- wrapping paper
- paper wrap from food products

### Do not include:

- soiled or contaminated paper
- tissues
- books
- any paper heavily contaminated with plastic (or remove the plastic)

***Pilot Special!*** You can also include **magazines** as part of this trial! Please bundle or bag magazines with your **newspapers** (the old 1990-1991 phone books can be included with the newspaper too!).

Please continue to save and put out for recycling: newspapers, glass bottles and jars, metal food and beverage cans, plastic containers, boxboard and corrugated cardboard.

With your cooperation we may be able to demonstrate that household paper can successfully be recycled and diverted away from landfill. If you have questions, please call the Recycling Hotline 392-2121.

## Thank you for your cooperation!

This recycling program funded by:



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SAMPLE :  
Frankford Flyer

# THANK YOU

for participating in the Quinte Regional Recycling program.  
Its success depends on you!

Unfortunately,  
we could not accept the material that we left behind  
in your Blue Box.

## THESE ARE THE ITEMS YOU CAN RECYCLE:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> GLASS BOTTLE AND JARS<br>please rinse                       | <input checked="" type="checkbox"/> NEWSPAPERS AND INSERTS<br>in paper or plastic bags                                |
| <input checked="" type="checkbox"/> FOOD AND BEVERAGE CANS<br>please rinse                      | <input checked="" type="checkbox"/> CORRUGATED CARDBOARD<br>flattened and tied (in maximum 30" x 30"<br>x 8" bundles) |
| <input checked="" type="checkbox"/> RIGID PLASTIC CONTAINERS<br>eg. yogurt tubs, bleach bottles | <input checked="" type="checkbox"/> BOXBOARD<br>eg. cereal and shoe boxes and milk cartons                            |

IF YOU HAVE ANY QUESTIONS  
PLEASE CALL  
THE RECYCLING HOTLINE  
AT **392-2121**

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Ontario Multi-Material  
Recycling Incorporated

**Quinte**  
Regional  
Recycling



recycled post-consumer waste

Original "Problem Card"  
2-colour

# **We Need Your Help!**

## ***Please keep your Boxboard separate!***

- Keep boxboard separate and do not mix with other paper products such as corrugated cardboard or newspaper.
- Cleaned and flattened boxboard and milk-type cartons should be stuffed into an unflattened boxboard box. Place beside the Blue Box.
- You can include any milk, cream, or juice carton that has a gable-type top. Please rinse, flatten and stuff them into the boxboard box.
- Please do not bag your cans, glass, or plastic containers. Keep them loose in the blue box. **Please put out your box only when it's full!**

If you have any questions call the  
**Recycling Hotline 392-2121**  
(call collect if it's long distance)



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Recycling

" Problem Card "  
2 - colour  
1 of 5



# We Need Your Help!

## *Please don't bag your cans, glass, or plastic!*

- Your box should contain only loose glass, plastic, and metal containers. These items should not be bagged.
- All paper products should be bundled, bagged, or boxed separately and placed beside or on top of your blue box.
  - Newspapers and inserts placed in a paper or plastic bag or tied.
  - Corrugated cardboard flattened and tied in 30"x 30"x 8" bundles.
  - Boxboard cleaned, flattened, and stuffed in a box separate from other paper.
  - Rinse, flatten, and put gable-topped milk, cream, and juice cartons with boxboard.
- Please put out your Blue Box only when it is full.

If you have any questions call the  
Recycling Hotline 392-2121  
(call collect if it's long distance)



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# We Need Your Help!

## RECYCLE these items ONLY

### Newspapers

Tie or place in paper or plastic grocery bag

Place **beside** Blue Box

### Cardboard

Flatten and tie in 30"x30"x8" bundles

Place **beside** Blue Box

### Food & Beverage Cans & Glass Bottles & Jars

Rinse all containers

Put metal lids and tops in a tin can

Place in Blue Box

### Boxboard

Flatten and stuff in a boxboard box

Place **beside** Blue Box

### Plastic Containers

Rinse food containers

Discard screw caps

Place in Blue Box

(Don't rinse or remove caps of oil and antifreeze containers)

**Please put out your  
Box only when full!**

If you have any questions call the  
Recycling Hotline 392-2121  
(call collect if it's long distance)



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Recycling

"Problem Cards"



# We Need Your Help!

## *Please put out your Blue Box only when full!*

- Putting your box out only when it's full helps the drivers and makes our collection system that much more efficient. Put it out by 7:30 am.
- A full box should contain only glass, plastic, and metal containers. These items should be loose and not bagged.
- All paper products should be bundled or bagged separately and placed beside or on top of your blue box.
  - Newspapers and inserts placed in a paper or plastic bag or tied.
  - Corrugated cardboard flattened and tied in 30"x 30"x 8" bundles.
  - Boxboard cleaned, flattened, and stuffed in a box separate from other paper.

If you have any questions call the  
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(call collect if it's long distance)



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# We Need Your Help!

## *Please put out ONLY glass bottles and jars*

- DON'T put out any other types of glass such as light bulbs, drinking glasses, window glass, mirrors, etc. These items are a different kind of glass that we can't recycle and will cause our glass to be rejected.
- DON'T include any ceramics such as cups or dishes or ceramic bottles. These materials will also contaminate our shipments.
- Glass containers should be rinsed clean (leave the labels on). Metal lids will be recycled if they are placed in a tin can with any metal can lids. Glass should be placed loose in the box with the cans and plastic.
- Please put out your Blue Box only when it's full.

If you have any questions call the  
**Recycling Hotline 392-2121**  
(call collect if it's long distance)



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# BLUE BOX PLUS!



## Inside this issue:

- Waste audits for local businesses
- What goes in - what stays out
- A day in the life of recycled materials
- A conserver society on the horizon

Spring 1991

## Congratulations Centre and South Hastings Blue Box Plus! Users

You and your neighbours have had your Blue Boxes for six months. Your enthusiastic recycling efforts are having a positive impact on our environment.

### **Local benefits**

Landfill operators report that the volume of waste going to local landfill sites has been reduced by as much as 30 to 50 per cent since the Blue Box Plus! demonstration program was launched in our communities in September 1990.

As a result of your interest, recycling has become part of school and office life, too. Currently, 36 elementary and high schools are participating in programs to cut waste. Businesses will be encouraged by Quinte Regional Recycling's waste auditor to take measures to reduce, reuse and recycle.

### **Across Ontario**

Our Blue Box Plus! demonstration is also expected to have an impact beyond our own communities.

Residents of Tweed have been involved in a pilot project to determine the most efficient method of collecting corrugated cardboard. That trial is drawing to an end, but its findings will be helpful as other municipalities expand their Blue Box programs to include additional materials.

Residents of Frankford are being asked to help with a trial collection of all household papers. If markets can be found for this material, this demonstration could dramatically reduce the amount of material that goes to landfill.

As well, a number of you have been contacted for your comments on how and why you reduce, reuse and recycle and what information is most helpful to you in taking these actions. Your answers are proving useful as

communication strategies are developed for other programs across Ontario.

For example, you have told researchers that you continue to use the BLUE BOX INS & OUTS card for reference, and because of its success in Centre & South Hastings, it is now being used as a model for other municipalities' programs.

### **15 municipalities back program**

The Blue Box Plus! program now boasts a total of 33,000 households: 20,000 urban, 9,000 rural curbside and 4,000 rural depot.

Blue Box Plus! was launched by Quinte Regional Recycling, a project of the Centre & South Hastings Waste Management Board, a coalition of 15 municipalities. The program has been established in conjunction with and funded by the Ontario Ministry of the Environment and OMMRI: Corporations in Support of Recycling, a coalition of six industry sectors that support municipal recycling initiatives.

### **Your support makes the difference**

"Residents' support has been critical to the project's success," says Jean Smith, the Board's Chairman. "Their extra effort to recycle more is making a difference that we can all see and appreciate."



### **Recycling and the Environment**

Imagine a double-car garage filled with recycled material — as high as the CN Tower.

That's the volume of waste that's been taken away from landfill!

◊ In the first 6 months of operation, we have recycled over 2,500 tons of material!

◊ The energy saved by recycling this material has saved us the equivalent of over

10 million kilowatt-hours of electricity or 1 million litres of oil!

◊ Recycling the paper products means that we have saved over 27,000 trees!

Newsletter (4 pages) - 2 colour - actual size tabloid (11"x17")

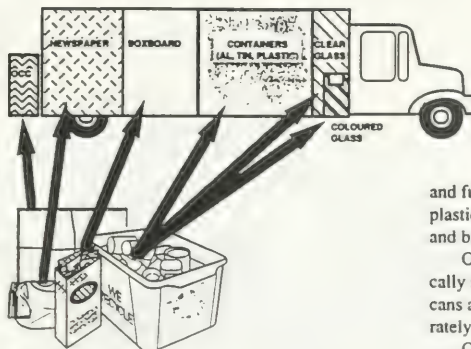
## WHERE DOES IT ALL GO?

You've sorted through your household waste and put all recyclable items into your Blue Box. Keeping material free from contamination is the key to our program's success. For example, a single broken ceramic plate or cup mixed in with glass bottles and jars can cause rejection of an entire load of glass. By putting only the right materials in your Blue Box (see page 3 for more information) you help to keep the program running smoothly.

### *At the curb*

Putting the proper materials into your Blue Box is only the first step. What happens to this material when the Blue Box leaves your household?

Recycling truck drivers empty the boxes at curbside into a preliminary sort by type of recyclable material. Eight trucks are used in our program to collect items from the participating households and from three rural depots. Each truck has compartments for: newsprint and old corrugated cardboard; aluminum, plastic and tin containers; boxboard; clear



glass; and colored glass.

Truck operators will leave material behind if it cannot be recycled through our program.

### *At the facility*

The material is further sorted for recycling at the Quinte Regional Recycling Facility, Trenton. Except for a magnetic separator for metal cans, all other material is hand-sorted.

Clear glass and colored glass are dumped separately and checked for contamination.

Newspapers and corrugated cardboard is cleaned of plastic bags and other contamination on a sorting table and then baled. Commercial corrugated cardboard is baled immediately.

Boxboard is sorted into two categories, stored in bins until sufficient quantities are accumulated and then baled.

Plastic containers are hand-separated from cans and further categorized into four plastic types; these are then stored and baled.

Once they have been mechanically separated, steel and aluminum cans are also stored and baled separately.

Once materials have been baled, they are stored to await a full load. Good markets have been found for all materials.

Materials shipped to markets are reused in the manufacture of new items.

The glass is returned to a glass manufacturer where it is used in the making of new glass bottles and jars. Steel and aluminum cans are made into new cans. The newspapers can be used to make a variety of paper products including recycled content newsprint, boxboard and tissues.

Corrugated cardboard is reduced to pulp and used in the manufacturing of packaging boxboard.

## More Quinte recycling initiatives

### *Household hazardous waste*

Plans for a permanent Household Hazardous Waste Depot/Waste Exchange are underway. The depot would be open two days a month and would reuse and recycle the majority of material brought there. A mobile "toxic taxi" would service rural/village areas on a regular basis, picking up items like paint and insecticide cans. [Watch your local paper for details.](#)

### *Attention Quinte area businesses!*

Quinte Regional Recycling's waste auditor will be contacting local industry, commercial outlets and institutions to assist them with their reduction and recycling efforts. A user-pay "Blue Box" program that will pick up Blue Box materials and high-grade paper at curbside or receiving docks is being developed. Call 395-5136.

### *Get your backyard composter!*

To date, 6,200 backyard composting units have been distributed throughout the area. This represents approxi-

mately 20 per cent of the potential for backyard units. If you don't yet have yours, composters are available, ranging in price from \$18 to \$30, and can be obtained from many municipalities or by calling the Hotline number, 392-2121. With this effective, clean method of recycling your kitchen and yard waste into compost for your garden, you could reduce your household waste by one-third.

### *Refrigerator Recovery Program!*

Quinte Regional Recycling is assisting Ontario Hydro with its pilot refrigerator buy-back program. Ontario Hydro will pay \$50 for an operational fridge. The programs goal is to remove old, inefficient fridges from the grid. Quinte Regional Recycling will pick up the fridges, remove the freon, and ensure that the freon and hulk are recycled. RRR will also pick-up any other appliances for a nominal fee.

For further information, contact the Recycling Hotline at 392-2121. Call collect if it's long distance.



# UPDATED BLUE BOX INS AND OUTS

## 1. RIGID PLASTIC CONTAINERS

Remove and discard screw-on caps and rinse containers of soft drinks, detergents, juice, water, bleach, shampoo, yogurt, ice cream and other foods. Include but do not rinse or remove tops of oil and antifreeze containers.

**DO NOT INCLUDE** foam or film plastics, drink boxes, pill boxes, plastic tops or other plastic products.

## 2. GLASS BOTTLES AND JARS

Remove metal caps and lids for recycling and rinse containers. It is not necessary to remove labels.

**DO NOT INCLUDE** other types of glass, ceramics, dishes, cups, window glass, light bulbs, mirrors.

## 3. FOOD AND BEVERAGE CANS

Rinse cans. Place loose lids and tops in bottom of cans & pinch the top to trap lids "inside". It is not necessary to remove labels or flatten cans.

**DO NOT INCLUDE** aerosol or paint cans, aluminum foil or plates, frozen juice cans (unless all metal), metal pots or other metal products.

## 4. NEWSPAPERS AND INSERTS

Place newspaper and inserts in a plastic or paper bag beside your Blue Box.

**DO NOT INCLUDE** magazines, catalogues, books or bond paper. Keep corrugated cardboard and boxboard separate from newspapers.

## 5. CORRUGATED CARDBOARD

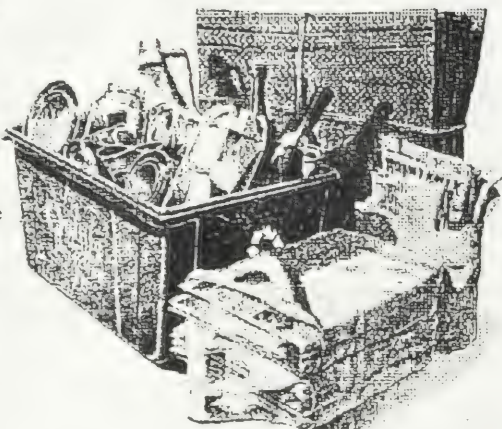
Flatten and bundle 30" by 30" parcels up to 8" thick. This type of cardboard, used for shipping stereos and large appliances, has tiny corrugations in the middle section. Place bundles beside Blue Box.

**DO NOT INCLUDE** waxed or coated boards, food-soiled pizza boxes or any non-corrugated cardboard.

## 6. BOXBOARD BOXES

Flatten cereal, detergent, shoe boxes and other boxboard packages including rinsed milk cartons. Stuff in a boxboard box and place beside your Blue Box.

**DO NOT INCLUDE** paper or plastic liners, trays, paper towel rolls, egg cartons, drinking boxes.



***Your help is essential to ensure an efficient program!!!***

**PLEASE DON'T BAG YOUR CANS, GLASS OR PLASTIC.** Leave these materials loose in your Blue Box. This makes it easier for the driver to place them into the different compartments.

**KEEP BOXBOARD IN A SEPARATE BOX OR BAG.** All boxboard should be flattened and stuffed into another boxboard box. This should be placed beside your Blue Box.

**PLEASE PUT OUT YOUR BLUE BOX ONLY WHEN IT'S FULL.** This means fewer stops each week for the drivers, and that means a more efficient program.

## Recycling Reminders

### CURBSIDE PICKUP

Put your full Blue Box at the curb before 7:30 a.m. on the same day as your regular municipal garbage pickup. Please check your local newspaper for any announced changes.

### RURAL PICK-UP

If you have rural municipal pick-up as in Sidney, Thurlow and Huntingdon Townships, place your full box on the same side of the road as your mail delivery on your regular municipal garbage day.

### LANDFILL DEPOTS

Tyendinaga, Hungerford, Madoc and Rawdon landfill sites have a recycling depot with separate bins for different materials. It is important to put the correct recyclable material in the correct bins.

### HOLIDAYS

There will be no collection on Statutory Holidays. If the holiday falls on your regular collection day put your Blue Box out on your regular collection day the following week.

### IDENTIFY

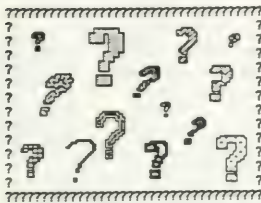
Write your address on the white rectangle on the end of your Blue Box. The Blue Box is the property of the municipality and should remain with the house if you move.

### CALL

The success of our Blue Box program depends on your careful participation. If you have questions or doubts about anything call the Recycling Hotline 392-2121 (call collect if it's long distance).



## Can it go in the Blue Box?



Although the program hopes to collect even more materials as markets develop, only certain kinds can presently be recycled (see "Ins and Outs", page 3.)

These items **cannot** be included in your Blue Box:

- food or contaminated packaging
- plastic bags
- frozen juice containers
- magazines
- styrofoam
- wood
- scrap metal
- aerosol cans
- fine paper
- ceramics
- dishes
- window glass

## Did you know?

Our recycling project is having a far-reaching effect: The American Paper Institute is using test bales of our boxboard to examine the feasibility of recycling this material. Recycled boxboard from our program will also be used by Lever Brothers in the manufacture of 200,000 new detergent boxes. The company will include up to 25 per cent recycled content in the new packages.

Centre and South Hastings has two high rise buildings and one low rise apartment building participating in the Blue Box Plus! project. Residents in one of these high-rises will be testing both blue bags and blue boxes for their recyclables.

Other apartments can now come on the program. The building manager/super should call 392-2121 for more information.

If you need a Blue Box, call your municipal office, or 392-2121.

## Ontario moving to conserver society with new waste reduction action plan

Ontario's Environment Minister Ruth Grier used a recent meeting of mayors, wardens and reeves in Belleville as the setting for the announcement of the province's new waste reduction action plan. It is a plan the Minister calls "a cornerstone in the building of a new conserver society."

*"In the 1990s, we have no option but to accept responsibility for better use of our resources. The future well-being of our communities and of our children depends on it," she said. "What I am offering is a province-wide action plan and specific suggestions on how we can work together as community leaders to get our society out of this mess."*

*"This plan is intended to ensure that we divert from disposal, at the very least, 25 per cent of our waste by 1992 and 50 per cent by the year 2000," Grier said.*

The province's waste reduction action plan calls for:

- strong regulatory measures to reduce at source the flow of valuable resources now going to landfill;
- the creation of financial and technical systems to divert materials from landfill and into productive use and reuse;
- the development of healthy markets for materials recovered through source-separation programs, and;
- public education programs to help residents make responsible waste reduction choices.

The plan will affect us all. New regulations will require major retail malls, construction and demolition sites, office complexes, hospitality services, industries, and most Ontario municipalities to do waste audits and to develop waste reduction action plans to ensure they meet the government's waste reduction objectives.

Similar audits and plans will be part of a regulation requiring major packaging users to reduce the waste of materials from their activities.

All but the smallest municipalities will be required to have recycling programs in place by early 1992. Grier's objective is to see that recycling, now available to 50 per cent of Ontario households, increases to

90 per cent, including apartments, farms and cottages by 1995.

Municipalities will also be expected to provide community composting for leaf and yard wastes starting next year. Grier predicted an expansion of current blue box programs to include old corrugated cardboard, telephone books, magazines, boxboard and mixed rigid plastic containers.

As you can see, our Blue Box Plus! program is helping to chart the course for other Ontario municipalities.

Grier promised an aggressive marketing strategy to encourage a strong and continued demand for source-separated used materials within the year. The strategy will be developed in cooperation with other government agencies, other levels government, industry, labour, business and environmentalists.

The environment minister promised a comprehensive public education program to provide information, promotion, training and technical assistance on waste reduction to the public, municipalities, industries and schools.

Phone Books can go in the Blue Box! You can now put last year's phone book with the newspaper bundle. They will be sent to Paperboard Industries for recycling.

### Blue Box Plus! News

is published by:

Quinte Regional Recycling

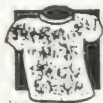
with the assistance of:

- OMMRI: Corporations in Support of Recycling
- Environment Ontario

If you have questions, please call the Recycling Hotline, 392-2121.

(call collect if it's long distance)

### Textiles



Put clean clothing and textiles in a garbage-type bag and tie securely with a piece of cloth or a sock. Include most clothing, sheets, drapes, etc. Place the bag beside the Blue Box only when you have a full bag. **Do Not include** dirty or soiled material. Do not include vinyls, pillows, belts, raincoats, luggage, ski gloves, handbags, or shoes. Avoid putting the bag out on rainy days.

### Clean Plastic Bags



Place clean plastic bags and wrap in a plastic bag and tie it shut. Add only clean material, free of food residue, or any paper or stickers. Include plastic grocery sacks, rinsed milk pouches and outer bags, bread bags, dry cleaning bags, diaper outer bags (no diapers), frozen vegetable bags, produce bags, blue newspaper bags, outer wrapping from toilet tissue/paper towels. **Do Not include** dirty or soiled material or any paper. Do not include plastic food (stretch) wrap, wrap from bacon or meats, cereal and cracker liners, plastic overwrap from boxes, snack food bags (chips, candy), vinyls, rubber gloves or balloons.

### Newspapers & Magazines

Place newspapers, inserts, phone books, magazines & catalogues in a plastic or paper bag next to your Blue Box. If possible, keep magazines & catalogues until you have a full bag. **Do Not include** books or soiled paper. Keep mixed paper, corrugated cardboard and boxboard separate from newspapers.

### Corrugated Cardboard

This is the type used for shipping stereos, furniture, large appliances (it has the wavy corrugations in the middle). The boxes must be flattened and bundled in 30" by 30" sections up to 8" thick and left beside your Blue Box. **Do Not include** waxed or coated boxes, pizza boxes (unless absolutely clean), or any non-corrugated cardboard.

### Boxboard & Household Paper



Boxboard includes cereal, shoe box, and detergent type of boxes and **rinsed** milk cartons. Mixed household paper includes junk mail, paper bags, egg cartons, cardboard tubes, paper packaging such as cookie wrap, sugar and flour bags and other clean paper packaging. Remove any food and liner bags, **flatten** the boxes and place all material in a box beside your Blue Box. **Do Not include** drinking boxes or contaminated paper such as tissues. No paper with heavy foil or plastic lamination or waxed paper. Shake out all food residue. Remove rigid plastic trays (as found in some cookie or cracker bags) and recycle with plastic containers.

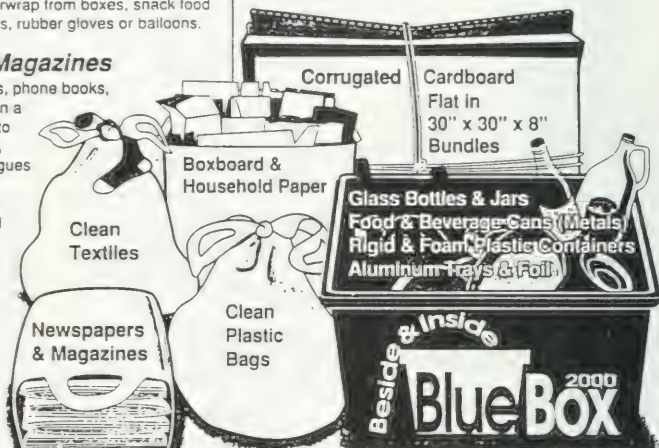
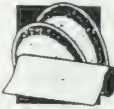
### Rigid & Foam Plastic Containers

Discard tops and **rinse** containers for soft drinks, detergents, water, juice, bleach, shampoo, yogurt, ice cream, and other food stuffs. Include, **but do not rinse**, empty oil and anti-freeze plastic containers and leave their tops on. Include both foam and clear plastic cups, trays, and packaging. **Do Not include** drink boxes, medicine containers, plastic toys or other durable plastic products



### Aluminum Trays & Foil

Include rigid foil containers such as pie plates, fast-food trays, etc. Include clean aluminum foil. Foil and plates should be flattened and folded together into one unit and placed loose in the Blue Box. **Do Not include** aluminum foil with food scraps or grease. Do not foil with paper or plastic lamination, (no take out food tins, no butter-carry cigarette wrapping, no yogurt tubs, no metalized plastic chip bags, no blister foil). Do not ball aluminum into other cans or containers.



### Glass Bottles & Jars - Rinsed

Remove caps and lids, you don't have to remove labels. Rinse the containers. You can recycle the metal caps and lids with cans. **Do Not include** any other type of glass: ceramics, dishes, cups, window glass, light bulbs, mirrors, pyrex, or drinking glasses



### Metal Food & Beverage Cans

**Rinse cans out.** You don't have to remove labels or flatten the cans. Place metal lids from cans and glass jars in the bottom of a can and pinch the top to trap the lids inside. **Do Not include** aerosol cans, paint cans, frozen juice cans (unless all metal), metal pots or any other metal products.



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Put these items **Beside** the Blue Box

Put these items **Inside** the Blue Box

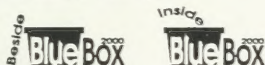


# Welcome to your leading role in **Blue Box<sup>2000</sup>**

With Blue Box<sup>2000</sup>, you the householder, are front stage and centre. You have a more important recycling role than ever before. Here are some tips and reminders to help you on your way.

## Blue Box<sup>2000</sup> Advanced Recycling Tips

KEEP the materials in separate groups and set them out according to instructions. *How* you recycle is just as important as *how much* you recycle. Some materials go inside the Blue Box, others go in separate containers Beside the Blue Box. Don't mix materials or put things in the Blue Box that don't belong there.



COLLECT a reasonable quantity of material before you set out an item for recycling. You don't have to put out every type of item each time you set out your Blue Box. In fact, it may take several weeks for you to collect a reasonable quantity of some things such as plastic bags, textiles or household paper.

REMEMBER the 3R's: Reduce, Reuse and Recycle. The more you recycle, the more conscious you will become of where and how your family generates waste. As this happens, keep your eye open for opportunities to move up the 3R's ladder. Look for ways to Reuse materials instead of recycling and to Reduce waste entirely by avoiding certain habits and products.

WATCH for news of other ways you can help to reduce waste. Expanded recycling with the Blue Box is only one part of Blue Box<sup>2000</sup>. Over the coming year new programs will be added to help in Waste Reduction, Backyard Composting and safe disposal of Household Hazardous Waste.

### ♦ PLASTIC BAGS

Save plastic bags and wrapping until you have a bag full. Turn bags inside out to ensure there are no receipts or labels in them. When setting the bag out at the curb it's a good idea to weigh it down so it won't blow away. Tie the bag's handles in a knot; do not use metal twist ties.

### ♦ TEXTILES

Collect unwanted clothing and textiles until you have accumulated a full bag. Tie a sock or piece of cloth on the bag to identify the contents. Items in good condition should be bagged separately and sent to a local charity for reuse.

### ♦ MAGAZINES and CATALOGUES

When you've accumulated a large stack, slip them in a plastic bag and set out with the newspapers. Magazines and catalogues can be put in the bag with the newspapers. However, it helps if they are bagged separately.

### ♦ BOXBOARD AND HOUSEHOLD PAPER

This includes virtually all paper that's not contaminated. Use a large boxboard container such as a detergent or cereal box to collect your boxboard and household paper. Flatten all boxes and rinse and flatten milk cartons before putting them in the box. Make sure there's no food residue in the paper sent for recycling. Shake out grocery, bread and cookie bags and remove the liner bags from cereal boxes.

## Blue Box Basics: A Few Reminders

SET OUT your full Blue Box at the curb before 7:30 a.m. on the same day as your regular garbage pick-up.

KEEP ALL recyclables well away from your regular garbage, if possible on the other side of the drive. The Blue Box is the signal to the driver to stop. Please make sure it is visible from the road.

IDENTIFY your Blue Box by putting your address on the side. The Blue Box should remain with the house when you move.

RURAL PICK-UP will be on the same side of the road as your mail delivery.

FULL BOX: Please put out your Blue Box only when it is full.

LOST OR STOLEN BOX: To replace a lost or stolen Blue Box, call the Recycling Hotline (Collect) 392-2121.

HOLIDAYS: There will be no collection on Statutory Holidays. If the holiday falls on your regular collection day, put out your Blue Box on the regular collection day the following week. Check your local newspaper for any changes.



DEPOTS: Tyendinaga, Hungerford, Madoc, Rawdon landfill sites and the larger apartment buildings have a recycling depot with separate bins for different materials. Please use the right bins.

CALL: The success of our Blue Box program depends on your careful participation. If you have any questions or doubts about anything, call the Recycling Hotline (Collect) 392-2121.

Quinte Regional Recycling is taking a leading role in waste diversion. Your co-operation in making this an effective and efficient program is appreciated. We are striving to maximize recycling, however, some of the products we CAN'T recycle at this time include:

drinking boxes	diapers
shoes	scrap metal
pottery or ceramics	any glass that's not bottles or jars
waxed paper	food-contaminated items
packaging with different materials such as paper/metal/plastic	



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